THE NEWS LETTER
OF THE
BUREAU OF PUBLIC ROADS

VOL. 1, NO. 6 APRIL, 1926.

CONTENTS

NOVEL PILE-DRIVER ATTACHMENT FOR A STEAM SHOVEL

CONTRIBUTED BY THE DIVISION OF CONSTRUCTION FROM DATA SUBMITTED BY WILLIAM BREWSTER, HIGHWAY ENGINEER OF DISTRICT 10.

AN IMPROVISED PILE-DRIVING OUTFIT PROVED TO BE SATISFACTORY AND ECONOMICAL FOR USE IN DRIVING PILES TO CONTROL THE SLIDES ALONG THE ROADWAY OF WEST VIRGINIA FEDERAL-AID PROJECTS NOS. 41 AND 66. IT WAS DESIGNED FOR ATTACHMENT TO A THEW STEAM SHOVEL, TYPE 00. THE DETAILS OF THE CONNECTIONS ARE INDICATED IN FIGURE 1. THE APPARATUS WAS CONSTRUCTED ALMOST ENTIRELY OF JUNK MATERIALS EITHER IN STOCK OR PURCHASED AT A SMALL COST, WITH THE EXCEPTIONS OF THE HAMMER, FOLLOWER AND LEAD TIMBERS, AND THE DESIGN WAS INFLUENCED CONSIDERABLY BY THE NECESSITY OF USING JUNK RATHER THAN SPECIALLY PURCHASED MATERIALS. USING THE PILE DRIVER ATTACHED TO THE SHOVEL AS INDICATED IT WAS POSSIBLE TO DRIVE FORTY 12-FOOT PILES IN A 9-HOUR DAY OR TWENTY-ONE 25-FOOT PILES IN AN EQUAL LENGTH OF TIME.

THE HAMMER, OF STANDARD DESIGN AND WEIGHING 1,500 POUNDS, WAS USED IN CONJUNCTION WITH A 650-POUND FOLLOWER OR PILE CAP WITH WOOD BLOCK IN THE TOP. THIS HAMMER OPERATED IN TWO 6 BY 6-INCH LEAD TIMBERS TIED TOGETHER WITH HAND-FORGED STRAP-IRON STIRRUPS MADE OF 3/4 BY 3-INCH STRAP. THE MAIN LEADS WERE 28 FEET LONG, SUPPLEMENTED BY A 4-FOOT DETACHABLE AND HINGED BOTTOM SECTION.

THE LEADS WERE SUPPORTED FROM THE BOOM OF THE SHOVEL BY MEANS OF CARRIER HOOKS THAT WERE HUNG ON A LONG STEEL SHAFT WHICH REPLACED THE REGULAR BOOM-SHEAVE SHAFT. THIS SHAFT WAS SUPPORTED NEAR THE ENDS BY BRACKETS BOLTED TO THE BOOM AND THESE BRACKETS ALSO ACTED AS SPACERS TO HOLD THE CARRIER HOOKS AT THEIR PROPER DISTANCE APART (THE DISTANCE OUTSIDE TO OUTSIDE OF THE LEADS). HOLES WERE BORED NEAR THE ENDS OF THE SHAFT IN WHICH SMALL BOLTS WERE PLACED TO PREVENT THE CARRIER HOOKS FROM JUMPING OFF THE ENDS OF THE SHAFT.

THE CARRIER HOOKS WERE CUT FROM 3/8-INCH BOILER PLATE AND REINFORCED OR STIFFENED BY LIGHT ANGLE IRON, SPOT WELDED IN PLACE. AN ACETYLENE TORCH WAS USED IN THE CUTTING AND WELDING. THE HOOK SHAPE SHOWN IN THE DRAWING WAS SELECTED BECAUSE IT FACILITATES THE SETTING UP OF THE MACHINE.

THE LEADS WERE BRACED TO THE SHOVEL BY THREE SETS OF BRACES. (FIG. 2) TWO-INCH PIPE WAS FOUND TO BE MOST SATISFACTORY AND THE ENDS WERE FLATTENED FOR CONVENIENCE IN FASTENING. THESE ENDS WERE REINFORCED, AFTER FLATTENING, BY SPOT WELDING A PIECE OF STRAP IRON TO THE BACK OF EACH FLATTENED END.

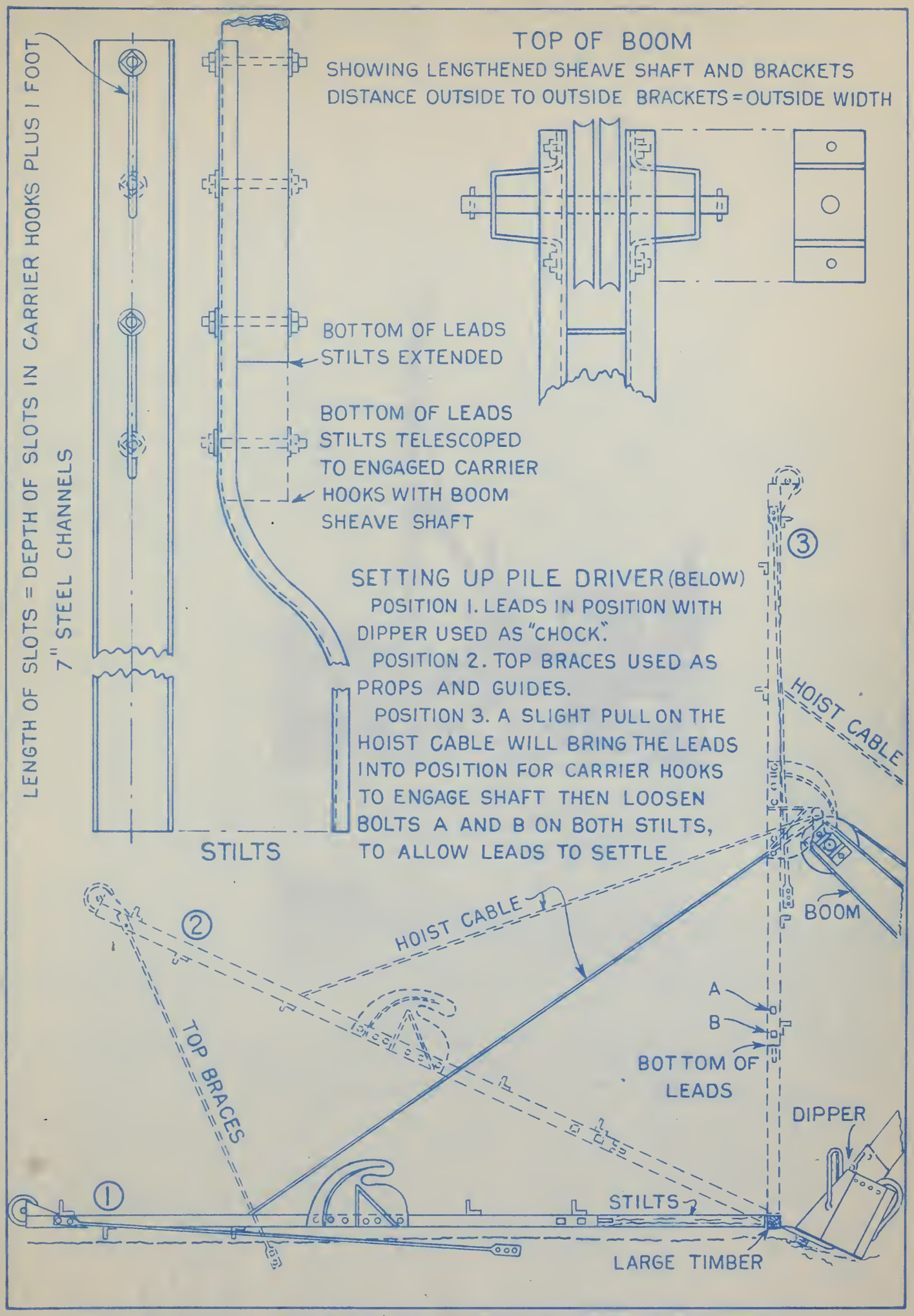


FIGURE 1 - DETAILS OF IMPROVISED PILE DRIVER ATTACHMENT FOR A STEAM SHOVEL

FIGURE 2. - THE IMPROVISED STEAM-SHOVEL-PILE-DRIVER IN OPERATION SHOWING THE THREE SETS OF BRACES WHICH CONNECT THE DRIVER TO THE SHOVEL.

THE CROWN PULLEY CONSISTED OF A LIGHT 14-INCH SHEAVE PRESSED ON A 1-1/2-INCH STEEL SHAFT WHICH WAS MOUNTED IN ADJUSTABLE BABBITTED BEARINGS, FITTED WITH GREASE CUPS. THE BEARINGS WERE MOUNTED ON TRIANGULAR BRACKETS EXTENDING BACK OF THE LEADS SUFFICIENTLY TO SET THE SHAFT 7 INCHES FROM THE CENTER OF THE LEADS, A DISTANCE EQUAL TO THE RADIUS OF THE CROWN SHEAVE. ALL BOLTS THROUGH THE TRACK FACE OF THE LEADS WERE DEEPLY COUNTERSUNK AND FITTED WITH A NUT AND HEAVY WASHER ON THE OUTSIDE END, SEATING DIRECTLY ON THE WOOD OF THE LEADS. THESE NUTS WERE ALSO COUNTERSUNK FLUSH WITH THE OUTSIDE SURFACE SO THAT BRACES OR PLATES COULD BE DRAWN TIGHTLY AGAINST THE WOOD.

METHOD OF ATTACHING TO STEAM SHOVEL

IN ORDER TO ATTACH THE LEADS IT WAS NECESSARY TO USE TWO STILTS AS SHOWN IN FIGURE 1. THESE STILTS WERE MADE FROM 7-INCH LIGHT-WEIGHT CHANNELS. THEY WERE BENT AS SHOWN TO GIVE A BROADER FOOTING AND WERE FITTED WITH TWO SLOTS EACH FOR THE PURPOSE OF LOWERING THE GUIDES AND ENGAGING THE HOOKS WITH THE SHAFT THROUGH THE BOOM SHEAVES OF THE STEAM SHOVEL.

THE STILTS WERE BOLTED TO THE BOTTOM OF THE LEADS, THE HINGED SECTION BEING REMOVED. THE BOLTS WERE CLAMPED TIGHTLY WITH THE STILTS EXTENDED TO THEIR GREATEST LENGTH. THE LEADS WERE THEN PLACED IN POSITION IN FRONT OF THE BOOM OF THE SHOVEL, EXTENDING AWAY FROM BUT IN LINE WITH IT. THE LOWER END OF THE STILTS WAS ABOUT EIGHTEEN INCHES BEYOND A POINT DIRECTLY UNDER THE END OF THE BOOM. A CROSS TIE OR OTHER HEAVY TIMBER WAS THEN PLACED ACROSS THE BOTTOM OF THE STILTS AND THE TEETH OF THE DIPPER OF THE SHOVEL WERE USED AS A CHOCK FOR THIS TIMBER. THEN THE CABLE WAS UNSTRUNG AND THE END PASSED OVER ONE OF THE BOOM SHEAVES AND ATTACHED TO THE CENTER OF THE FIRST STIRRUP ABOVE THE CARRIER HOOK. THE TWO TOP BRACES WERE THEN ATTACHED AND A GUY ROPE FASTENED TO EACH SIDE NEAR THE TOP OF THE LEADS. THESE GUY ROPES WERE THEN MANNED BY ONE LABORER EACH TO PREVENT THE LEADS FROM SWINGING SIDEWISE. THE LINES WERE SNUBBED AROUND A CONVENIENT TREE OR A CROW BAR DRIVEN INTO THE GROUND. THE LEADS WERE SLOWLY HOISTED UNTIL THE LOWER CURVED PORTION OF THE CARRIER HOOKS RESTED AGAINST THE CARRIER SHAFT.

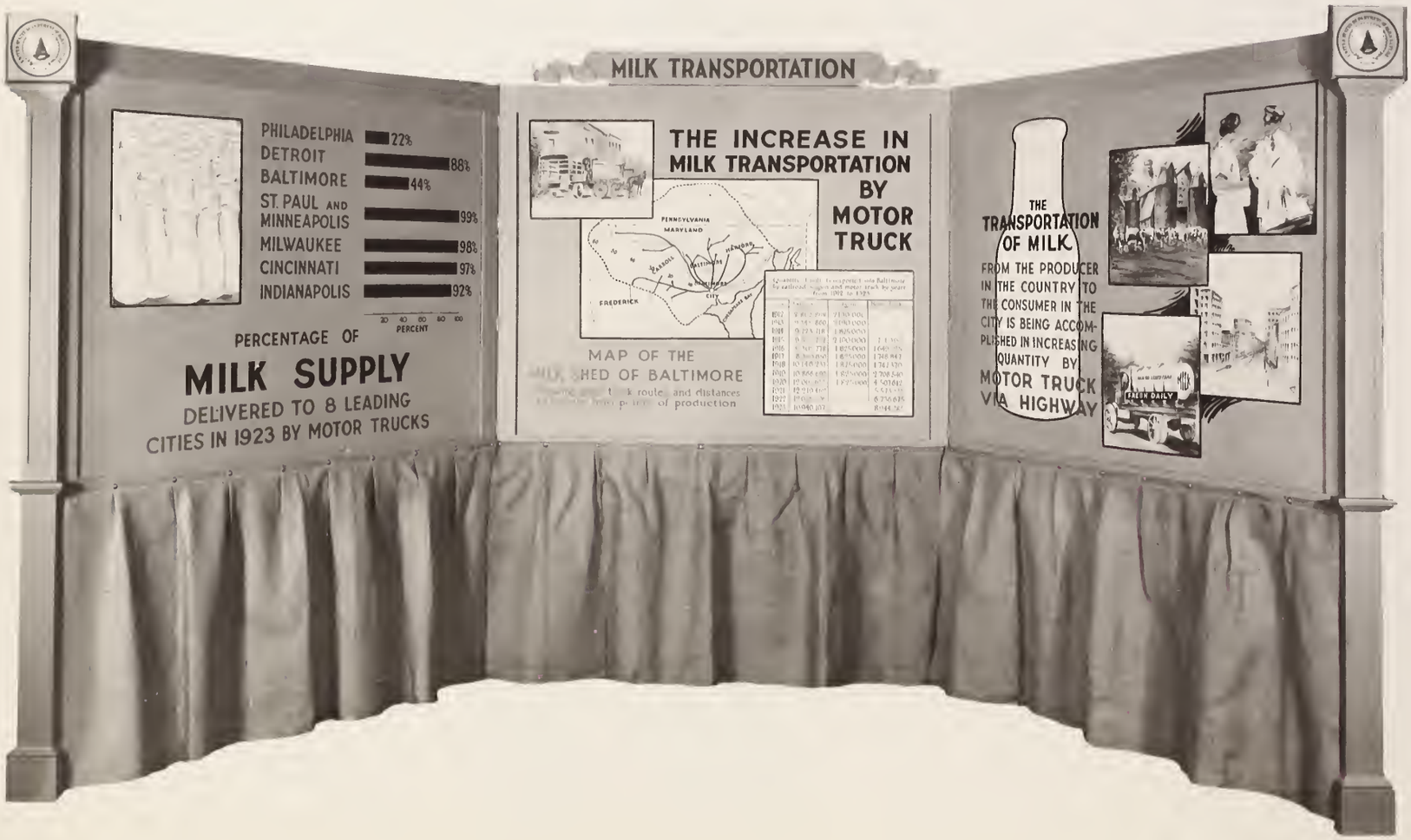
THE STILT BOLTS WERE THEN LOOSENED SLIGHTLY AND THE LEADS LOWERED INTO THE SLOTS UNTIL THE CARRIER HOOKS RESTED FIRMLY ON THE CARRIER SHAFT. THE CLAMP PLATES WERE PLACED UNDERNEATH THE CARRIER SHAFT (BOOM-SHEAVE SHAFT) AND ALL BRACES WERE FASTENED. AFTER THIS WAS DONE THE STILTS AND GUY ROPES WERE REMOVED AND THE

CABLE STRUNG UNDER ONE OF THE BOOM SHEAVES AND OVER THE CROWN SHEAVE, DOWN TO THE BOTTOM OF THE LEADS. THE SHOVEL WAS THEN REVOLVED UNTIL THE LEADS WERE NEAR THE HAMMER AND CAP. THEY WERE THEN SNAKED UP UNDER THE LEADS AND HOISTED INTO PLACE. A 2 BY 4-INCH OR OTHER CONVENIENT STRIP WAS THEN LOWERED LIGHTLY ONTO IT.

THE DIPPER AND STICK WERE NOT UNSHIPPED. THEY WERE PICKED UP WITH THE CROWDING ENGINE IN MOVING, AND THEY WERE USEFUL AS A STRUT FOR ADDITIONAL STABILITY.

THE APPARATUS WAS THEN READY FOR OPERATION; PRECAUTIONS BEING TAKEN THAT THE PILING WAS LEFT AS MUCH AS 6 FEET ABOVE THE LEVEL UPON WHICH THE SHOVEL WAS STANDING. IF IT WAS DESIRED TO DRIVE THE PILING FLUSH WITH THE GROUND IT WOULD BE NECESSARY TO ATTACH THE 4 FOOT HINGED SECTION. A LONGER DETACHABLE SECTION (6 TO 8 FEET) IS CONVENIENT FOR USE WHERE THE PILING IS TO BE DRIVEN IN A FALLEN BERM.

WHERE PILING IS NEEDED AT THE FOOT OF A SLOPE, THE LEADS MAY BE SET UP AWAY FROM THE SHOVEL AND GUYED IN POSITION. IN THIS CASE THE BOTTOM SECTION, OF COURSE, IS NOT USED. THE LEADS REST ON TWO PARALLEL 3 BY 12 INCH BOARDS AND THE CABLE IS RUN THROUGH A LARGE SNATCH BLOCK FASTENED TO THE BOTTOM OF THE LEADS. THIS PERMITS OF THE SHOVEL BEING PLACED AT AN ANGLE WITH THE DRIVER AND A NUMBER OF PILES MAY BE DRIVEN IN THIS MANNER WITHOUT MOVING THE SHOVEL.


MILK TRANSPORTATION
PHILADELPHIA 22%
DETROIT 88%
BALTIMORE 44%
ST. PAUL AND MINNEAPOLIS 99%
MILWAUKEE 98%
CINCINNATI 97%
INDIANAPOLIS 92%
20 40 60 80 100
PERCENT
PERCENTAGE OF
MILK SUPPLY
DELIVERED TO 8 LEADING CITIES IN 1923 BY MOTOR TRUCKS
THE INCREASE IN MILK TRANSPORTATION BY MOTOR TRUCK
PENNSYLVANIA
MARYLAND
FREDERICK
MAP OF THE
THE TRANSPORTATION OF MILK
FROM THE PRODUCER IN THE COUNTRY TO THE CONSUMER IN THE CITY IS BEING ACCOMPLISHED IN INCREASING QUANTITY BY MOTOR TRUCK VIA HIGHWAY

THE NATIONAL SESQUI-CENTENNIAL EXPOSITION

THE PRESIDENT HAS SIGNED A BILL APPROPRIATING $2,186,000 FOR THE PREPARATION, AND DISPLAY OF A GOVERNMENT EXHIBIT AT THE NATIONAL SESQUI-CENTENNIAL EXPOSITION TO BE HELD IN PHILADELPHIA FROM JUNE 1 TO DECEMBER 1 OF THIS YEAR. ONE MILLION DOLLARS OF THIS AMOUNT IS TO BE USED FOR THE CONSTRUCTION OF A GOVERNMENT BUILDING AND THE BALANCE IS TO BE DEVOTED TO THE COSTS OF MANUFACTURE AND INCIDENTAL CHARGES IN CONNECTION WITH THE MAINTENANCE AND DEMONSTRATION OF THE EXHIBITS OF THE SEVERAL FEDERAL DEPARTMENTS. THE EXPOSITION WILL BE HELD ON GROUNDS ABOUT SEVEN MILES SOUTH OF THE CITY HALL AND ADJACENT TO THE LEAGUE ISLAND NAVY YARD.

THE DEPARTMENT OF AGRICULTURE HAS BEEN ALLOCATED $85,000 OF WHICH THE BUREAU HAS BEEN APPORTIONED $5,100 FOR THE EXPENSES INCIDENTAL TO THE CONSTRUCTION AND DISPLAY OF OUR UNIT. OF THE 16,586 SQUARE FEET RESERVED FOR THE DEPARTMENT THIS BUREAU WILL RECEIVE 1,772 SQUARE FEET.

THE BUREAU'S EXHIBIT WILL DEAL WITH HIGHWAYS AND RURAL ENGINEERING. THE ROAD DISPLAY WILL CONSIST OF A LARGE RELIEF MAP OF THE FEDERAL-AID HIGHWAY SYSTEM AND THE INTERSTATE HIGHWAY SYSTEM WHICH WILL BE SURROUNDED AT THE TWO SIDES AND REAR BY 15 PICTURES PAINTED ON PANELS REPRESENTING THE DEVELOPMENT OF HIGHWAYS AND TRAFFIC FROM THE PRIMITIVE CONDITIONS OF 1776 TO 1926.

DETAILS WHICH WILL BE SHOWN ON THE MAP WILL INCLUDE, MOUNTAINS, DESERTS, RIVERS, LAKES, HARBORS, NATIONAL FORESTS, NATIONAL PARKS, STATE BOUNDARIES AND STATE NAMES, PRINCIPAL CITIES, THE FEDERAL-AID AND NON FEDERAL-AID SECTIONS OF THE FEDERAL-AID HIGHWAY SYSTEM, THE NUMBERED UNITED STATES HIGHWAYS, THE STANDARD DIRECTION, INFORMATION, DANGER, AND CAUTION SIGNS, THE DENSITY OF TRAFFIC BY SMALL MOTOR VEHICLES, THE SNOW REMOVAL AREAS, NATIONAL MONUMENTS, THE NATIONAL CAPITOL AND SIMILAR DATA.

THE PAINTINGS ON THE REAR AND TWO SIDES WILL INCLUDE PICTURES OF THOMAS JEFFERSON ON THE WAY TO PHILADELPHIA WHERE HE SIGNED THE DECLARATION OF INDEPENDENCE (1776); THE LANCASTER PIKE, THE FIRST MACADAM ROAD BUILT IN AMERICA (1786); THE CUMBERLAND ROAD, THE FIRST ATTEMPT AT LONG DISTANCE HIGHWAY CONSTRUCTION IN THIS COUNTRY (1800); THE RACE BETWEEN THE BALTIMORE AND OHIO RAILROAD TRAIN AND THE STAGE COACH (1830); PRAIRIE SCHOONERS AND PIONEERS ON THE SANTE FE TRAIL IN SEARCH OF THE GOLDEN WEST (1849);

THE TURNPIKE AND TOLL GATES (1864); THE SAME ROAD THAT JEFFERSON RODE OVER IN 1776, ILLUSTRATING THE INEFFICIENCY OF MAINTENANCE UNDER THE COUNTY GOVERNMENTS (1876); THE BICYCLE CAUSING RENEWED INTEREST IN HIGHWAY DEVELOPMENT (1885); THE FIRST STATE-AID ROAD IN NEW JERSEY (1891); THE OFFICE OF PUBLIC ROADS BEGINS THE CONSTRUCTION OF OBJECT LESSON ROADS (1893); EARLY STAGES IN THE DEVELOPMENT OF AUTOMOBILE ROADS (1902); FEDERAL-AID ROAD AND THE INTENSIVE MOTOR TRUCK TRAFFIC OF THE WAR PERIOD (1916); THE ARLINGTON, VIRGINIA AND BATES ROAD TESTS AS EXAMPLES OF MODERN HIGHWAY RESEARCH (1921); THE DESIGNATION OF NUMBERED UNITED STATES HIGHWAYS AND THE INCREASING USE OF MOTOR BUSSES AND STAGES (1925); AND THE MODERN HIGHWAY AND EXISTING TRAFFIC - PERHAPS A SCENE ON THE LACKAWANNA TRAIL SHOWING RAILROAD GRADE CROSSING ELIMINATION (1926).

THE HORIZONTAL DIMENSIONS OF THE MAP EXHIBIT OVER ALL WILL BE 36 FEET LONG IN FRONT AND 30 FEET LONG IN THE REAR AND 25 FEET DEEP. THE REAR AND SIDE PANELS WILL BE APPROXIMATELY $7\frac{1}{2}$ FEET IN HEIGHT.

A 3-PANEL BOOTH ILLUSTRATING HOW FARM INCOME HAS BEEN INCREASED BY THE USE OF POWER WILL BE ONE OF THE DISPLAYS OF THE DIVISION OF AGRICULTURAL ENGINEERING. ON THE CENTER PANEL A MAP OF THE UNITED STATES WILL BE INSET WITH ILLUMINATED TRANSPARENCIES INDICATING THE AMOUNT AND KIND OF FARM POWER USED IN THE VARIOUS SECTIONS. PILES OF MONEY WILL INDICATE THE RELATIVE EFFECT OF POWER UPON INCOME. UPON THE LEFT PANEL WILL BE SHOWN THE PRIMITIVE AGRICULTURAL IMPLEMENTS OF THE PERIOD FROM 1776 TO 1830 AND THESE WILL BE CONTRASTED ON THE RIGHT PANEL WITH THE MODERN MACHINERY WHICH IS AVAILABLE TO THE FARMER OF 1926. IT IS APPARENT FROM AN INSPECTION OF THE STATISTICS THAT SOME SECTIONS OF THE COUNTRY HAVE FAILED TO TAKE ADVANTAGE OF MODERN DEVICES AND IN SO DOING HAVE FALLEN SHORT OF THE INCOME MADE POSSIBLE BY THEIR USE.

THE LARGEST EXHIBIT OF THE BUREAU WILL BE A MODEL FARM BUNGALOW WHICH WILL BE ROUGHLY 30 BY 65 FEET OVER ALL. THIS EXHIBIT WILL BE PREPARED COOPERATIVELY BY THE DIVISION OF AGRICULTURAL ENGINEERING AND THE BUREAU OF HOME ECONOMICS. PARTITIONS WILL BE ERECTED TO INDICATE THE LAYOUT OF A MODEL ONE-STORY FARM HOUSE. CEILINGS OF LIGHT CONSTRUCTION WILL PERMIT THE ELECTRIC LIGHTING SYSTEM TO BE DISPLAYED. THE BUREAU OF HOME ECONOMICS WILL FURNISH THE HOUSE AND PROBABLY MAINTAIN AN ATTENDANT TO DEMONSTRATE COOKING AND THE CARE AND ARRANGEMENT OF THE MODERN FARM HOME. THE DEVELOPMENT OF THIS EXHIBIT HAS NOT PROGRESSED TO A POINT WHERE IT IS POSSIBLE TO DESCRIBE THE DETAILS.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

STATUS OF FEDERAL AID ROAD CONSTRUCTION FUNDS

AS OF MARCH 31, 1926

B.P.R. - F.A. - A - I
M - MAR. 1926 - A

STATES	1	2		3		4	5		6						STATES
	APPORTIONMENT FROM JULY 11, 1916 TO DATE	ALLOTTED TO PROJECTS (SEE COLUMN 6 FOR DETAILS)		PLACED UNDER CONSTRUCTION		PAID TO STATES	BALANCE OF APPORTIONMENTS		ALLOTMENTS TO PROJECTS (SUBDIVISION OF AMOUNTS SHOWN IN COLUMN 2)						
							NOT ALLOTTED TO PROJECTS (COLUMN 1-2)	NOT YET PLACED UNDER CONSTRUCTION (COLUMN 1-3)	COMPLETED AND PAID		AGREEMENT STAGE		P.S.&E. STAGE RECOMMENDED BY DISTRICT ENGINEER		
		FEDERAL AID	MILES	FEDERAL AID	MILES				FEDERAL AID	MILES	FEDERAL AID	MILES	FEDERAL AID	MILES	
ALABAMA	$ 14,349,455.00	$ 10,926,063.35	1488.5	$ 10,859,507.27	1488.6	$ 9,628,510.19	$ 3,423,391.65	$ 3,489,947.73	$ 8,004,926.04	1200.7	$ 2,556,576.61	267.0	$ 364,566.70	30.8	ALABAMA
ARIZONA	9,617,249.00	6,688,454.19	821.7	6,480,303.49	795.0	6,167,619.83	3,028,794.81	3,136,945.51	5,722,433.78	712.2	794,832.74	101.4	71,187.67	8.1	ARIZONA
ARKANSAS	11,605,804.00	10,076,181.43	1654.8	9,840,021.43	1617.4	8,820,015.93	1,529,622.57	1,766,782.57	7,284,374.90	1271.8	2,607,977.66	364.4	183,828.88	28.6	ARKANSAS
CALIFORNIA	22,072,815.00	18,226,248.29	1368.8	18,226,249.29	1358.8	15,652,269.80	3,846,568.71	3,846,566.71	12,190,744.16	1007.5	5,493,151.98	290.9	642,342.15	60.4	CALIFORNIA
COLORADO	12,325,812.00	9,070,951.18	963.1	8,944,326.84	940.5	7,794,911.35	3,264,860.82	3,381,486.18	6,666,011.35	705.8	2,074,857.22	204.8	330,082.81	42.6	COLORADO
CONNECTICUT	4,333,681.00	2,804,203.43	153.2	2,659,840.48	144.1	2,308,002.08	1,529,477.57	1,673,840.52	2,069,680.80	115.0	663,037.63	32.8	81,585.00	5.4	CONNECTICUT
DELAWARE	2,474,058.00	2,156,740.35	155.9	2,097,520.35	142.1	1,893,347.53	317,317.65	376,537.66	1,708,735.60	119.4	383,784.75	22.7	59,220.00	13.8	DELAWARE
FLORIDA	8,084,964.00	6,389,128.15	405.4	6,324,042.57	391.7	4,636,883.20	1,695,835.96	1,760,911.43	1,405,497.97	96.3	4,370,709.60	251.7	612,930.58	67.4	FLORIDA
GEORGIA	18,431,953.00	17,350,135.53	2456.4	16,749,259.33	2399.8	14,774,455.49	1,091,917.47	1,682,693.67	11,150,159.00	1710.6	4,957,592.57	631.8	1,342,383.96	114.0	GEORGIA
IDAHO	8,559,627.00	7,319,073.14	847.6	6,961,1[illegible]	830.8	6,489,312.46	1,240,553.86	1,598,465.62	5,727,605.51	703.6	1,160,262.39	131.1	431,206.24	12.9	IDAHO
ILLINOIS	29,832,198.00	23,156,933.22	1553.7	23,156,933.22	1553.7	22,434,936.66	6,676,264.78	6,675,264.78	20,088,070.39	1335.7	3,062,172.83	217.6	6,690.00	0.4	ILLINOIS
INDIANA	18,204,355.00	16,809,894.10	972.8	16,601,334.63	960.0	13,394,904.89	2,394,460.90	2,602,970.37	7,598,049.37	496.3	8,199,315.72	477.5	22,529.01		INDIANA
IOWA	19,485,563.00	16,772,010.63	2775.9	15,089,197.64	2531.7	13,671,664.72	2,713,552.37	4,397,365.36	11,427,868.06	2033.4	3,886,952.24	589.0	1,467,200.24	153.5	IOWA
KANSAS	19,464,411.00	16,869,345.04	1795.3	16,232,615.94	1667.4	14,349,767.37	2,595,065.96	3,231,796.06	12,104,341.22	1117.5	3,682,615.19	463.7	1,071,388.64	204.1	KANSAS
KENTUCKY	13,212,809.00	10,976,080.86	1000.3	10,864,083.64	990.1	9,610,136.30	2,236,728.14	2,349,725.36	7,587,237.34	691.2	3,179,082.38	293.1	209,761.14	25.9	KENTUCKY
LOUISIANA	9,272,408.00	7,675,272.26	1191.0	7,675,272.26	1191.0	6,836,103.10	1,597,135.74	1,597,135.74	6,015,602.36	1031.0	1,399,134.40	114.7	260,535.50	45.3	LOUISIANA
MAINE	6,464,828.00	4,945,424.46	365.8	4,899,321.63	361.1	4,506,120.68	1,519,403.55	1,565,506.37	4,192,507.39	303.6	752,917.06	62.2			MAINE
MARYLAND	5,925,057.00	5,197,988.72	434.0	5,197,998.72	434.0	5,141,148.12	727,068.28	727,068.28	5,083,591.22	421.3	114,397.50	12.7			MARYLAND
MASSACHUSETTS	10,108,726.00	7,611,742.67	418.3	7,326,468.47	401.4	6,369,876.81	2,496,983.33	2,782,267.53	6,059,192.29	340.7	1,305,665.11	63.7	245,886.27	13.9	MASSACHUSETTS
MICHIGAN	20,342,365.00	15,918,708.47	1183.5	15,740,101.34	1166.3	14,444,917.17	4,423,656.53	4,602,263.66	11,511,521.28	848.3	4,157,165.81	229.9	150,021.38	5.3	MICHIGAN
MINNESOTA	19,591,780.00	17,832,916.56	3712.2	17,518,916.56	3640.6	16,773,308.05	1,758,863.44	2,072,863.44	15,023,616.56	3118.3	2,410,300.00	512.7	399,000.00	81.2	MINNESOTA
MISSISSIPPI	12,128,018.00	10,779,173.78	1480.6	10,495,255.26	1444.6	8,832,105.61	1,348,844.22	1,632,762.75	6,488,210.89	1024.8	3,397,192.50	352.7	893,770.31	103.1	MISSISSIPPI
MISSOURI	22,786,436.00	21,508,318.54	2084.6	20,720,092.90	2016.6	16,169,575.85	1,278,117.46	2,066,343.10	12,381,494.18	1430.5	7,581,738.98	574.0	1,645,085.38	80.1	MISSOURI
MONTANA	13,424,885.00	7,777,376.11	1272.4	7,263,655.02	1162.2	6,780,698.08	5,647,508.89	6,161,329.98	6,333,465.99	1054.9	1,383,007.69	207.0	60,902.53	10.5	MONTANA
NEBRASKA	14,635,236.00	11,659,593.21	2978.2	10,628,764.35	2772.0	8,502,557.68	2,975,641.79	4,006,470.65	5,126,316.75	1690.9	5,554,500.50	1116.9	979,776.96	170.5	NEBRASKA
NEVADA	8,795,215.00	7,772,489.45	853.4	7,772,489.45	853.4	7,316,269.40	1,022,725.55	1,022,725.65	4,675,427.35	518.1	3,097,062.10	335.3			NEVADA
NEW HAMPSHIRE	3,169,492.00	2,674,667.15	256.6	2,661,704.26	255.2	2,452,689.30	494,824.85	517,787.74	2,355,471.10	236.0	301,222.72	19.7	17,973.33	0.9	NEW HAMPSHIRE
NEW JERSEY	8,467,420.00	7,563,006.30	315.0	7,496,556.90	310.6	6,350,839.23	904,413.10	970,863.10	4,547,656.43	266.5	2,894,495.47	40.5	120,855.00	8.0	NEW JERSEY
NEW MEXICO	10,972,386.00	8,253,522.14	1532.7	8,208,764.24	1527.3	7,600,685.06	2,719,863.96	2,765,621.76	7,229,012.10	1410.9	755,049.63	100.7	270,461.41	21.1	NEW MEXICO
NEW YORK	34,046,195.00	27,164,884.58	1783.2	25,155,494.58	1648.8	20,206,084.08	6,880,310.42	8,889,700.42	15,898,002.34	1062.3	11,044,132.24	706.0	222,750.00	14.9	NEW YORK
NORTH CAROLINA	15,717,206.00	14,401,199.56	1432.9	13,966,098.18	1418.0	12,663,102.74	1,316,006.44	1,751,107.82	10,346,317.80	1213.8	3,696,401.55	209.9	459,480.21	9.2	NORTH CAROLINA
NORTH DAKOTA	10,748,659.00	8,446,591.84	2782.3	7,723,318.62	2619.6	6,706,341.79	2,302,077.16	3,025,340.38	6,000,208.11	2183.1	1,972,363.37	515.2	474,010.36	74.0	NORTH DAKOTA
OHIO	26,731,796.00	21,560,269.38	1697.4	20,653,960.95	1627.1	19,989,497.55	4,171,526.62	5,077,835.05	17,352,208.56	1362.9	3,479,550.36	281.7	729,500.46	52.8	OHIO
OKLAHOMA	16,059,787.00	14,349,230.59	1276.0	14,239,465.08	1268.7	13,309,786.50	1,710,556.41	1,921,321.92	11,679,316.23	1026.5	2,127,174.75	240.5	542,739.61	9.0	OKLAHOMA
OREGON	10,979,347.00	10,437,555.59	1071.6	9,777,627.84	1024.9	9,203,434.43	441,790.41	1,101,719.16	8,399,009.84	905.9	1,272,977.31	137.6	765,569.44	28.1	OREGON
PENNSYLVANIA	31,338,781.00	28,950,694.84	1719.7	27,282,598.07	1595.1	24,821,004.39	2,388,086.16	4,056,192.93	19,255,618.85	1037.3	9,483,608.69	590.9	1,211,467.30	91.6	PENNSYLVANIA
RHODE ISLAND	2,667,569.00	2,000,073.87	116.1	1,987,023.87	116.2	1,532,328.30	667,495.13	680,545.13	1,532,328.30	86.7	454,695.57	28.6	13,050.00	0.9	RHODE ISLAND
SOUTH CAROLINA	9,801,524.00	9,133,628.24	1717.8	8,956,021.26	1684.6	7,784,571.73	667,895.76	845,502.74	5,626,648.36	1307.2	2,808,942.66	342.3	699,037.22	68.3	SOUTH CAROLINA
SOUTH DAKOTA	11,166,790.00	9,877,634.73	2616.7	9,832,706.58	2598.7	9,127,233.53	1,289,165.27	1,334,083.42	8,151,916.09	2043.9	1,648,724.60	554.8	76,994.04	18.0	SOUTH DAKOTA
TENNESSEE	15,280,591.00	13,748,730.45	1028.2	13,154,562.91	990.2	11,586,256.56	1,531,860.55	2,126,028.09	9,493,528.76	709.8	3,229,349.36	241.4	1,025,852.34	77.0	TENNESSEE
TEXAS	40,606,431.00	36,383,066.36	5880.2	35,004,033.43	5758.6	30,615,023.66	4,223,364.64	5,602,397.57	26,178,976.66	4643.7	7,940,779.45	1083.6	2,263,411.26	153.0	TEXAS
UTAH	7,819,779.00	6,375,419.42	700.5	6,351,478.43	700.4	5,732,968.63	1,443,360.58	1,467,300.57	4,455,283.35	475.2	1,793,892.72	216.0	126,242.35	9.3	UTAH
VERMONT	3,268,507.00	2,516,231.97	168.0	2,442,164.30	157.7	2,136,381.07	752,275.03	826,342.70	1,997,644.12	134.2	444,520.18	23.5	74,067.67	0.3	VERMONT
VIRGINIA	13,501,514.00	13,336,977.29	1200.3	12,632,742.31	1160.8	10,967,739.07	164,536.71	868,771.69	10,036,677.69	973.7	1,957,804.50	151.4	1,342,495.10	75.2	VIRGINIA
WASHINGTON	10,145,776.00	8,957,509.46	691.5	8,957,509.46	691.5	7,890,235.73	1,188,266.54	1,188,266.54	7,725,109.46	663.9	1,232,400.00	27.6			WASHINGTON
WEST VIRGINIA	7,352,511.00	6,266,752.43	539.1	6,123,795.64	526.1	5,148,949.27	1,085,759.57	1,228,715.36	3,862,366.27	381.2	2,395,386.16	165.2	9,000.00	2.7	WEST VIRGINIA
WISCONSIN	17,438,815.00	12,648,464.72	1914.1	12,326,868.72	1780.9	10,790,679.99	4,790,360.28	5,111,946.28	9,932,977.49	1546.9	2,341,145.23	246.5	374,342.00	20.7	WISCONSIN
WYOMING	8,566,274.00	7,583,249.68	1301.0	7,524,574.58	1293.7	7,100,338.35	983,024.42	1,041,699.42	5,865,665.06	1127.7	1,677,257.53	166.0	40,327.00	7.3	WYOMING
HAWAII	1,100,153.00	312,635.18	15.9	312,636.18	16.9	55,391.21	787,517.82	787,517.82			97,440.00	6.6	215,195.19	9.4	HAWAII
TOTALS	$ 671,375,000.00	$ 566,101,433.39	66004.2	$ 548,082,356.94	64013.3	$ 485,810,933.61	$ 105,273,566.62	$ 123,292,643.16	$ 401,646,397.60	49997.8	$ 142,061,336.26	13987.1	$ 22,393,699.52	2019.3	TOTALS

RENTAL OF GOVERNMENT-OWNED EQUIPMENT

CONTRIBUTED BY THE LEGAL SECTION

SEVERAL MONTHS AGO THE GENERAL ACCOUNTING OFFICE RAISED A QUESTION REGARDING THE DISPOSITION BY THE BUREAU OF THE AMOUNTS DEDUCTED AS RENTAL OF GOVERNMENT-OWNED EQUIPMENT FROM VOUCHERS IN FAVOR OF FOREST ROAD CONTRACTORS. SUSPENSIONS WERE MADE IN THE ACCOUNTS OF ONE OF THE FISCAL AGENTS FOR AN EXPLANATION AS TO WHY SUCH DEDUCTIONS WERE NOT TRANSFERRED FROM FOREST HIGHWAY APPROPRIATIONS TO THE ACCOUNT IN THE TREASURY CALLED "MISCELLANEOUS RECEIPTS" AS REQUIRED BY SECTION 3617 OF THE REVISED STATUTES.

SECTIONS 3617 AND 3618 OF THE REVISED STATUTES REQUIRE THAT THE GROSS AMOUNT OF ALL MONEYS RECEIVED FROM ANY SOURCE FOR THE USE OF THE UNITED STATES SHALL BE PAID INTO THE TREASURY WITHOUT ABATEMENT OR DEDUCTION OF SALARIES, FEES, COSTS, CHARGES, EXPENSES, OR CLAIMS OF ANY DESCRIPTION WHATEVER. THE COMPTROLLER HAS HELD THAT MONEY RECEIVED FROM THE RENTAL OF GOVERNMENT EQUIPMENT IS "FOR THE USE OF THE UNITED STATES" WITHIN THE MEANING OF THESE SECTIONS OF THE REVISED STATUTES. IN ONE OF HIS DECISIONS IT WAS STATED THAT WHILE A CONTRACT OF THIS KIND MAY NOT CONTEMPLATE THE ACTUAL RECEIPT OF RENTAL MONEY, IT DOES CONTEMPLATE THE INDIRECT APPLICATION OF THE SAME TO REDUCE THE AMOUNT TO BE PAID A CONTRACTOR FOR SERVICES; AND THAT IF THIS USE COULD BE PERMITTED IT WOULD SIMPLY ACCOMPLISH IN AN INDIRECT WAY THAT WHICH COULD NOT BE DONE DIRECTLY UNDER THE REQUIREMENTS OF THE LAW.

IN EXPLANATION OF THE FAILURE OF THE BUREAU TO CREDIT THE RENTAL DEDUCTIONS TO THE ACCOUNT "MISCELLANEOUS RECEIPTS," ATTENTION WAS CALLED TO THE VARIOUS WAR MATERIALS ACTS AUTHORIZING THE USE OF SURPLUS WAR EQUIPMENT. IT WAS POINTED OUT THAT THE USE OF THIS EQUIPMENT WAS AUTHORIZED BY CONGRESS IN ADDITION TO THE MONEY APPROPRIATIONS; THAT FULL ADVANTAGE COULD BE TAKEN OF SUCH EQUIPMENT ONLY BY RENTING IT TO CONTRACTORS AND MAKING THE DEDUCTIONS AVAILABLE FOR USE IN BUILDING ADDITIONAL ROADS; THAT THERE WAS NO ACTUAL RECEIPT OF MONEY FOR THE USE OF THE UNITED STATES; THAT THE MONEY APPROPRIATIONS ARE NOT THUS INCREASED AS BOTH THE EQUIPMENT AND THE MONEY HAVE BEEN SEPARATELY AUTHORIZED, THE EQUIPMENT IN AUGMENTATION OF THE MONEY APPROPRIATIONS.

BY LETTER DATED MARCH 13, 1926, THE COMPTROLLER GENERAL'S OFFICE ADVISED THAT THE EXPLANATION SUBMITTED WAS ACCEPTED AND REMOVED THE SUSPENSIONS. THIS APPARENTLY ESTABLISHES THE RIGHT TO RETAIN EQUIPMENT RENTALS, PROVIDED, OF COURSE, THAT THE

EQUIPMENT SO RENTED HAS BEEN ACQUIRED BY TRANSFER FROM SURPLUS WAR STOCKS. RENTAL OF EQUIPMENT WHICH HAS BEEN PURCHASED OUTRIGHT BY THE DEPARTMENT, OR WHICH HAS BEEN ACQUIRED OTHER THAN BY TRANSFER AS SURPLUS WAR MATERIALS, WOULD HAVE TO BE COVERED INTO THE TREASURY AS MONEYS RECEIVED FOR THE USE OF THE UNITED STATES, ACCORDING TO THE RULINGS OF THE COMPTROLLER.

INTERNATIONAL ROAD CONGRESS AND EXHIBITION

THE ROYAL ITALIAN GOVERNMENT HAS EXTENDED AN INVITATION TO THE UNITED STATES GOVERNMENT TO SEND DELEGATES TO THE FIFTH INTERNATIONAL ROAD CONGRESS AND AN EXHIBIT TO THE THIRD INTERNATIONAL ROAD EXHIBITION WHICH IS TO BE HELD CONCURRENTLY WITH THE CONGRESS IN MILAN, ITALY DURING SEPTEMBER OF THIS YEAR. THE CONGRESS WILL TAKE PLACE FROM SEPTEMBER 6 TO 13 AND THE EXHIBITION WHICH IS UNDER THE AUSPICES OF THE COUNTY AND BOROUGH OF MILAN WILL EXTEND FROM SEPTEMBER 1 TO 20.

THE DEPARTMENT HAS RECOMMENDED THAT THIS GOVERNMENT SHOULD NOT ONLY TAKE PART IN THE MILAN CONGRESS AND EXHIBITION BUT SHOULD ALSO BECOME A PERMANENT MEMBER OF THE PERMANENT INTERNATIONAL ASSOCIATION OF ROAD CONGRESSES, AND IN THIS RECOMMENDATION THE DEPARTMENTS OF STATE AND COMMERCE HAVE CONCURRED.

EARLY IN APRIL PRESIDENT COOLIDGE DESPATCHED MESSAGES TO CONGRESS REQUESTING THAT CONCURRENT RESOLUTIONS BE PASSED BY BOTH HOUSES AUTHORIZING AN APPROPRIATION FOR MEMBERSHIP IN THE CONGRESS AND THE DISPLAY OF AN EXHIBIT AT MILAN. THE PRESIDENT RECOMMENDED THE AUTHORIZATION OF AN APPROPRIATION OF NOT EXCEEDING $3,000 PER ANNUM TO ENABLE THE UNITED STATES TO ACCEPT MEMBERSHIP IN THIS IMPORTANT ASSOCIATION AND SUCH FURTHER AMOUNTS AS MAY BE NECESSARY FOR THE EXPENSES OF PARTICIPATION IN THE MEETING OF SUCH CONGRESSES AND OF THE EXECUTIVE COMMITTEE OF THE ASSOCIATION. IN ANOTHER MESSAGE THE PRESIDENT RECOMMENDED THE AUTHORIZATION OF AN APPROPRIATION OF $13,500 FOR PARTICIPATION BY THIS GOVERNMENT IN THE INTERNATIONAL ROAD EXHIBITION. BOTH MESSAGES HAVE BEEN REFERRED TO THE COMMITTEE ON POST OFFICES AND POST ROADS IN THE SENATE AND TO THE COMMITTEE ON FOREIGN AFFAIRS IN THE HOUSE.

MAINTENANCE COSTS

CONTRIBUTED BY THE DIVISION OF CONTROL

THE FOLLOWING TABULATION SHOWS THE AVERAGE ANNUAL MAINTENANCE COST PER MILE OF THE PRINCIPAL TYPES OF ROADS IN NEW YORK STATE. THE DATA WERE TAKEN FROM THE RECORDS OF THE STATE HIGHWAY DEPARTMENT. THE FIGURES DO NOT INCLUDE CHANGES OF TYPE, DUE TO RECONSTRUCTION, FROM ONE KIND OF SURFACING TO ANOTHER.

YEAR	BITUMINOUS MACADAM PENETRATION METHOD, ASPHALT AND TAR	TOPEKA ON CONCRETE BASE	TOPEKA ON MACADAM BASE	WATER-BOUND MACADAM	BRICK	FIRST CLASS CONCRETE	SECOND CLASS CONCRETE	GRAVEL	AVERAGE OF ALL TYPES
1916	$ 483	$ 205	$ 256	$ 906	$ 176	$ 141	$1,080	$ 587	$ 651
1917	408	245	393	970	222	112	1,127	918	643
1918	557	435	1,056	739	251	160	791	909	608
1919	501	144	443	694	247	214	761	771	560
1920	590	335	985	797	242	227	868	704	631
1921	753	229	769	951	307	225	874	890	744
1922	613	365	730	776	303	225	691	739	607
1923	794	332	855	897	350	218	729	814	712
1924	845	545	1,370	914	424	333	1,079	1,187	757
1925	1,017	597	1,411	1,000	564	820	1,141	1,619	954
AVERAGE	656	343	827	864	309	268	914	914	687

Table G-1 (1925) Calendar Year

United States Department of Agriculture
Bureau of Public Roads

B.P.R.-A-1
G-1 (1925)

GASOLINE TAXES, 1925

TOTAL TAXES EARNED ON MOTOR VEHICLE FUEL, REFUNDS ON GROSS TAX, DISPOSITION OF FUND & RATES

States and District of Columbia	Gross Tax Assessed, Prior to Deduction of Refunds	Exemption Refunds; (Deduct from Gross Tax)	Total Tax Earnings on Fuel for Motor Vehicles	Disposition of Total Tax Earnings: Collection Costs	Construction & Maintenance on Rural Roads: State Highways	Construction & Maintenance on Rural Roads: Local Roads	For Other Purposes	Tax Rates, 1925: Cents per Gallon, Jan 1st	Tax Rates, 1925: Cents per Gallon, Dec 31st	Tax Rates, 1925: Date of Rate Change	Net Gallons of Gasoline Taxed and Used by Motor Vehicles	Estimated Additional Gallons (Not Taxed) Used by Motor Vehicles	States and District of Columbia
Alabama	$ 2,140,802	-	$ 2,140,802	$ 9,461	-	(1) 2,131,341	-	2	2	-	107,040,092	-	Alabama
Arizona	1,035,551	$ 179,600	855,951	-	$ 427,976	427,975	-	3	3	-	28,531,836	-	Arizona
Arkansas (2)	3,230,559	280,199	2,950,360	-	1,357,360	(3) 1,593,000	-	4	4	-	73,759,002	-	Arkansas
California	16,150,387	1,193,598	14,956,789	7,393	7,229,248	7,229,248	(4)† 490,900	2	2	-	747,839,462	-	California
Colorado	1,991,531	30,585	1,960,946	-	980,473	980,473	-	2	2	-	97,377,858	-	Colorado
Connecticut	1,908,809	-	1,908,809	-	1,908,809	-	-	1	2	7/1	122,230,292	-	Connecticut
Delaware	350,580	8,499	342,081	-	342,081	-	-	2	2	-	17,104,050	-	Delaware
Florida	7,657,507	-	7,657,507	6,000	5,549,978	2,101,529	-	3	4	6/6	210,323,517	-	Florida
Georgia	4,418,824	-	4,418,824	4,200	1,641,248	1,386,688	(5)1,386,688	3	3½	8/26	138,802,152	-	Georgia
Idaho	932,064	36,621	895,443	9,466	885,977	-	-	2	3	3/1	30,809,320	-	Idaho
Illinois	NONE	-	-	-	-	-	-	0	0	NO TAX	-	530,534,340	Illinois
Indiana	7,832,462	179,413	7,653,049	12,436	5,200,637	2,439,976	-	2	3	4/1	272,980,870	-	Indiana
Iowa	3,568,184	63,069	3,505,115	5,520	1,151,144	2,302,289	(6) 46,162	0	2	4/16	175,255,740	51,796,350	Iowa
Kansas	3,000,253	95,059	2,905,194	-	2,905,194	-	-	0	2	5/1	145,259,690	52,911,710	Kansas
Kentucky	3,041,560	-	3,041,560	-	3,041,560	-	-	3	7/ 3	-	101,385,318	-	Kentucky
Louisiana	2,339,543	-	2,339,543	-	(8) 2,339,543	-	-	2	2	-	116,939,139	-	Louisiana
Maine	1,283,874	15,526	1,268,348	5,596	(9) 1,262,752	-	-	1	3	7/11	56,513,741	-	Maine
Maryland	2,022,986	45,950	1,977,036	2,500	(10)1,579,629	-	(11) 394,907	2	2	-	98,351,813	-	Maryland
Massachusetts	NONE	-	-	-	-	-	-	0	0	NO TAX	-	274,615,025	Massachusetts
Michigan	8,742,392	506,314	8,236,078	41,358	(12)6,694,720	(13)1,500,000	-	0	2	2/1	411,803,894	19,856,370	Michigan
Minnesota	3,989,282	125,342	3,863,940	-	3,863,940	-	-	0	2	5/1	199,464,097	57,908,930	Minnesota
Mississippi	2,494,274	-	2,494,274	1,800	(8) 1,224,976	(8) 1,203,715	(14) 63,783	3	3	-	83,142,469	-	Mississippi
Missouri	4,234,070	74,955	4,159,115	23,429	4,135,686	-	-	2	2	1/1	207,955,474	-	Missouri
Montana	674,710	-	674,710	-	101,207	371,090	(15) 202,413	2	2	-	33,735,497	-	Montana
Nebraska	2,202,236	8,434	2,193,802	4,963	2,188,839	-	-	0	2	4/1	109,690,122	26,570,900	Nebraska
Nevada	335,446	16,741	318,705	-	159,353	159,352	-	2	4	4/1	8,850,407	-	Nevada
New Hampshire	716,140	9,068	707,072	-	707,072	-	-	2	2	-	35,353,585	-	New Hampshire
New Jersey	NONE	-	-	-	-	-	-	0	0	NO TAX	-	249,639,220	New Jersey
New Mexico	537,356	-	537,356	26,868	(8) 510,488	-	-	1	3	3/17	20,490,862	-	New Mexico
New York	NONE	-	-	-	-	-	-	0	0	NO TAX	-	715,256,520	New York
North Carolina	6,238,508	156,130	6,082,378	-	6,082,378	-	-	3	4	2/21	161,371,522	-	North Carolina
North Dakota	649,416	15,000	634,416	-	224,095	-	(15) 410,321	1	1	-	64,941,557	-	North Dakota
Ohio	9,133,785	123,835	9,009,950	-	(8) 4,054,478	(8) 2,252,487	(16)2,702,985	0	2	4/18	450,497,522	99,550,500	Ohio
Oklahoma	5,143,517	-	5,143,517	-	3,351,898	1,791,619	-	2½	3	3/23	176,753,177	-	Oklahoma
Oregon	3,065,151	156,056	2,909,095	6,553	2,902,542	-	-	3	3	-	96,969,835	-	Oregon
Pennsylvania	8,352,798	-	17/8,352,798	-	3,136,819	2,105,917	(15)3,110,062	2	2	-	414,096,490	-	Pennsylvania
Rhode Island	318,357	-	318,357	-	318,357	-	-	0	1	4/29	31,835,668	3,576,640	Rhode Island
South Carolina	3,870,588	5,185	3,865,403	-	2,186,152	1,512,889	(18) 166,362	3	5	3/23	83,062,562	-	South Carolina
South Dakota	2,122,406	274,808	1,847,598	-	1,847,598	-	-	2	3	3/10	64,024,928	-	South Dakota
Tennessee	3,407,886	-	3,407,886	22,768	3,385,118	-	-	2	3	2/9	122,000,680	-	Tennessee
Texas	4,641,784	-	4,641,784	-	3,481,338	-	(19)1,160,446	1	1	-	464,178,427	-	Texas
Utah	1,064,004	-	1,064,004	3,750	(20)1,060,254	-	-	2½	3½	4/1	32,217,216	-	Utah
Vermont	502,272	-	502,272	-	(8) 502,272	-	-	1	2	2/26	25,863,167	-	Vermont
Virginia	3,863,117	161,166	3,701,951	5,604	2,464,231	1,232,116	-	3	21/3	-	123,398,365	-	Virginia
Washington	3,205,114	184,302	3,020,812	-	3,020,812	-	-	2	2	-	151,040,586	-	Washington
West Virginia	2,222,329	35,590	2,186,739	7,500	(22)2,179,239	-	-	2	3½	7/1	76,331,660	-	West Virginia
Wisconsin	4,155,469	123,793	4,031,676	10,000	4,021,676	-	-	0	2	4/1	201,583,789	49,330,860	Wisconsin
Wyoming	460,972	4,675	456,297	228	456,069	-	-	1	2½	4/1	20,746,056	-	Wyoming
Dist. of Columbia	895,568	6,970	889,598	-	-	-	(23) 889,598	2	2	-	44,479,898	-	Dist. of Columbia
TOTALS	-	-	146,023,940	217,393	102,065,216	32,721,704	11,024,627	Av. 2.26		-	6,457,733,284	2,131,056,365	TOTALS

REMARKS: Total tax earnings on fuel for motor vehicles represent the actual taxes which are available for disposal according to the laws of the various states. The gross tax assessed and exemption refunds show the procedure for depriving the total tax, and these totals bring of minor importance are not entered in this table. As some states allow no refunds for uses other than for propelling motor vehicles on highways, some of the total taxes are derived from liquid fuel, such as gasoline, etc, used for dyeing and cleaning, and for use in motor-boats, farm tractors, etc., which facts should be taken into account. A majority of the states paid for collection costs from sources other than from this tax. The last column shows estimates based on best available data and is shown so that a fair figure for gasoline consumption may be obtainable.

NOTES: (1) For maintenance only. (2) In addition $438,436 collected on motor oil tax of 10 cents per gallon. (3) Includes $873,240 payments on county road and bridge bonds. (4) Delinquent taxes uncollected not disposable in 1925. (5) To state treasury; same partly used to pay discounts on western and atlantic railroad rentals (6) Unaccounted for: probably delinquent taxes. (7) Tax increased to 5 cents effective February 21, 1926. (8) For maintenance only (9) Includes $282,913 for maintenance (10) For maintenance and reconstruction. (11) For maintenance of Baltimore streets. (12) Includes $3,000,000 for interest and retirement payments on state road bonds. (13) Payments to counties on state award highways (14) For sea-wall in Harrison County (15) For State General Fund (16) Maintenance of municipal streets (17) Includes $70,368 paid in delinquent taxes of former years (18) Covers part of first four months of year only, as new law excludes state general fund from share in gasoline tax fund. (19) For free school fund (20) Includes $460,000 payment of interest and to sinking fund on State road bonds (21) Tax increased to 4½ cents effective March 11, 1926. (22) Includes $1,520,463 payment of interest on state road bonds. (23) For improvement and repair of Washington streets.

L.A.A

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

TABLE MV-# 1 (1925)

MOTOR VEHICLE REGISTRATIONS, NUMERICALLY LISTED 1/
FOR CALENDAR YEAR, 1925 2/

B.P.R.-WISC. - A-1
A - 1925 - MV-# 1.

STATE AND DISTRICT OF COLUMBIA	3/ REGISTERED MOTOR VEHICLES, INDIVIDUALLY & COMMERCIALLY OWNED: 1925 GRAND TOTAL REGISTERED MOTOR CARS AND TRUCKS	PASSENGER AUTOMOBILES TAXIS AND BUSSES	MOTOR TRUCKS & ROAD TRACTORS	SPECIAL LIST OF PASSENGER CARS FOR HIRE 4/: TAXIS, ETC.	BUSSES	OTHER REGISTERED 5/ VEHICLES: TRAILERS	MOTOR-CYCLES	TAX-EXEMPT OFFICIAL VEHICLES AND MOTORCYCLES 6/: U. S. CARS	STATE & LOCAL CARS	MOTOR-CYCLES (OFFICIAL)	NUMBER OF LICENSES, OR PERMITS (AUTOS.): DEALERS 8/	OPERATORS	CHAUFFEURS	1924 7/ GRAND TOTAL REGISTERED: MOTOR CARS AND TRUCKS	PER CENT INCREASE 1925 OVER 1924	STATE AND DISTRICT OF COLUMBIA
ALABAMA	194,580	171,387	23,193	2,710	778	480	524		-	-	2,599	-	2,105	157,292	23.7	ALABAMA
ARIZONA	68,029	59,798	8,231	9/ 568	569	-	310		759	49	330	-	339	57,828	17.6	ARIZONA
ARKANSAS	183,589	159,511	24,078	9/ 2,398	378	918	263		572	30	-	-	-	141,983	29.3	ARKANSAS
CALIFORNIA	1,440,541	1,225,796	214,745	5,210	4,017	27,542	11,177		10/18,647	583	11,977	-	106,230	1,319,394	9.2	CALIFORNIA
COLORADO	240,097	221,513	18,584	2,416	816	82	1,862		-	-	3,206	20,079	7,776	213,247	12.6	COLORADO
CONNECTICUT	250,669	213,486	37,183	9/ 2,301	904	332	3,886		3,139	149	4,386	-	-	11/ 217,236	15.4	CONNECTICUT
DELAWARE	40,140	32,550	7,590	192	133	166	375		-	-	763	40,841	3,555	35,136	14.2	DELAWARE
FLORIDA	286,388	237,435	48,953	9/ 3,356	1,253	1,062	1,200		-	-	2,016	-	5,656	195,128	46.8	FLORIDA
GEORGIA	248,093	217,578	30,515	1,969	715	-	394		-	-	727	-	2,921	207,688	19.4	GEORGIA
IDAHO	81,506	73,896	7,610	558	570	168	518		1,050	-	324	-	448	69,227	17.7	IDAHO
ILLINOIS	1,263,177	1,101,943	12/161,234	10,374	3,289	3,777	6,603		NONE	-	2,000	-	100,000	1,119,236	12.8	ILLINOIS
INDIANA	725,410	630,554	94,856	3,642	1,896	5,063	4,525		525	-	2,242	-	40,247	651,705	11.3	INDIANA
IOWA	659,202	613,412	45,790	2,294	1,321	125	2,303		2,500	90	-	-	-	616,128	7.0	IOWA
KANSAS	457,033	409,968	12/ 47,065	2,140	696	-	1,434		2,014	-	-	-	-	410,391	11.2	KANSAS
KENTUCKY	261,647	235,020	12/ 26,627	2,981	1,120	-	703		1,169	-	1,119	-	8,867	229,804	13.8	KENTUCKY
LOUISIANA	207,000	176,000	31,000	1,477	672	-	520			-		-	10,000	178,000	16.3	LOUISIANA
MAINE	140,499	116,229	24,270	9/ 2,716	376	730	1,293		892	88	1,070	162,435	6,150	11/ 127,598	10.1	MAINE
MARYLAND	234,247	222,173	12,074	9/ 3,477	636	586	4,619			-		109,747	38,185	11/ 198,465	18.0	MARYLAND
MASSACHUSETTS	646,153	554,813	91,340	6,254	1,957	702	9,401		800	400	2,011	699,378	14/	570,578	13.2	MASSACHUSETTS
MICHIGAN	989,010	885,524	12/103,486	3,325	2,161	10,592	3,387		3,353	-	1,958	197,547	75,621	867,545	14.0	MICHIGAN
MINNESOTA	569,694	524,879	44,815	1,833	932	1,912	2,923		-	21	1,943	-	-	503,437	13.1	MINNESOTA
MISSISSIPPI	177,262	159,134	18,128	1,555	2,049	-	100		-	-	-	-	-	134,680	33.6	MISSISSIPPI
MISSOURI	604,166	543,426	60,740	4,921	1,407	1,037	1,934		1,317	5	-	-	-	540,500	11.8	MISSOURI
MONTANA	94,656	82,135	12,521	533	323	-	252		1,000	-	-	-	-	79,695	18.8	MONTANA
NEBRASKA	338,719	301,716	12/ 37,003	1,256	323	307	1,207		-	-	-	-	-	308,715	9.7	NEBRASKA
NEVADA	21,169	18,069	3,100	137	175	20	120		43	13	-	-	-	18,118	16.8	NEVADA
NEW HAMPSHIRE	81,498	72,472	9,026	1,903	635	407	1,701		30		507	60,772	31,903	11/ 71,149	14.5	NEW HAMPSHIRE
NEW JERSEY	580,554	469,156	111,398	5,367	2,401	1,389	7,730		4,409	771	-	-	-	11/ 504,470	15.0	NEW JERSEY
NEW MEXICO	49,111	47,470	1,641	391	308	88	209		-	3	-	-	-	41,680	17.8	NEW MEXICO
NEW YORK	1,625,583	1,346,665	278,918	26,079	3,966	5,[illegible]	18,642		10,588	1,192	4,703	-	-	1,412,879	15.0	NEW YORK
NORTH CAROLINA	15/ 340,287	311,284	28,903	2,102	2,446	500	863		4,110	-	-	-	-	302,232	12.6	NORTH CAROLINA
NORTH DAKOTA	144,972	133,791	12 / 11,181	375	1,076	-	443			-	-	-	-	117,346	23.5	NORTH DAKOTA
OHIO	1,346,400	1,179,400	167,000	5,554	4,1[illegible]	9,[illegible]	12,[illegible]		4,200	-	-	-	-	1,241,600	8.4	OHIO
OKLAHOMA	424,345	393,047	31,298	2,216	1,231	-	317			-	-	-	-	369,903	14.7	OKLAHOMA
OREGON	216,553	199,517	17,036	732	698	16/	2,347			-	598	51,084	15,165	192,615	12.4	OREGON
PENNSYLVANIA	1,330,433	1,149,074	181,359	6,237	6,615	2,821	11,234		3,756	889	24,105	1,576,219	14/	11/ 1,228,845	8.3	PENNSYLVANIA
RHODE ISLAND	101,756	84,337	17,419	1,431	13/ 262	59	1,343		458	64	-	117,252	14/	95,482	6.6	RHODE ISLAND
SOUTH CAROLINA	168,496	153,343	15,153	1,646	473	824	173		1,261	51	-	-	-	161,753	4.2	SOUTH CAROLINA
SOUTH DAKOTA	168,029	154,141	12/ 13,887	452	205	-	348		763	-	959	-	-	142,396	18.0	SOUTH DAKOTA
TENNESSEE	244,626	221,712	22,914	2,301	720		2[illegible]			50	510	-	-	204,680	19.5	TENNESSEE
TEXAS	975,083	886,362	88,721	6,454	1,260	4,800	2,228		1,302	561	-	-	-	11/ 801,833	21.6	TEXAS
UTAH	90,600	79,170	11,330	312	460	[illegible]	[illegible]		1,015	-	-	-	-	68,316	32.5	UTAH
VERMONT	69,676	64,566	5,010	1,134	153	-	718			-	-	-	-	61,179	13.7	VERMONT
VIRGINIA	282,650	246,950	36,700	2,543	1,173	[illegible]	[illegible]		2,435	125	-	-	-	261,945	7.9	VIRGINIA
WASHINGTON	328,442	281,452	46,990	9/ 1,833	1,574	1,595	2,379			141	-	-	-	295,443	11.1	WASHINGTON
WEST VIRGINIA	217,589	190,257	27,332	1,069	856	345	1,432			-	7,700	64,702	26,648	11/ 191,085	13.9	WEST VIRGINIA
WISCONSIN	594,386	528,090	12/ 66,296	2,535	829	169	[illegible]		555	80	2,700	-	-	525,221	13.2	WISCONSIN
WYOMING	47,711	42,547	5,164	347	553		220		203	-	-	-	-	43,639	9.3	WYOMING
DISTRICT OF COLUMBIA	103,092	89,790	13,302	1,182	265	No [illegible]	[illegible]			-	-	17,503	3,126	88,762	16.1	DISTRICT OF COLUMBIA
TOTALS	19,954,347	17,512,638	2,441,709	4/ 145,530	4/57,[illegible]	83,625	[illegible]	[illegible] 11,401	79,529	5,343	—	—	—	11/ 17,593,677	13.4	TOTALS

1/ THIS TABLE LISTS ONLY THE NUMBER OF MOTOR VEHICLES, LICENSES AND PERMITS. FOR THE FINANCIAL STATEMENT SEE TABLE MV-#2 (1925). THERE IS ALSO AN EXPLANATORY SHEET OUTLINING THE DETAILS, WHICH SHOULD BE NOTED IN CONNECTION WITH THE DATA. 2/ ALL STATES BUT NORTH CAROLINA REPORT DETAILS FOR FULL CALENDAR YEAR. NORTH CAROLINA REPORTS ONLY 6 MONTHS, JULY 1 TO DECEMBER 31ST. AS FISCAL YEAR FOR REGISTRATION ENDS ON JUNE 30TH. 3/ THE FIRST THREE COLUMNS RECORD THE REGULARLY REGISTERED STATE MOTOR CARS AND TRUCKS, WHICH PAY THE FULL REGISTRATION FEES. THE GRAND TOTAL IN FIRST COLUMN IS SUBDIVIDED INTO THE PASSENGER CARRYING CARS, WHICH INCLUDE PASSENGER AUTOMOBILES, TAXIS AND CARS FOR HIRE, AND BUSSES; AND THE COMMODITY CARRYING OR NON-PASSENGER MOTOR VEHICLES, WHICH INCLUDE MOTOR TRUCKS AND ROAD TRACTORS (EXCLUDING FARM TRACTORS). 4/ THESE TWO SPECIAL LISTS ARE TAKEN FROM SOURCES OTHER THAN REGISTRATION OFFICES OF THE VARIOUS STATES AND ARE INSERTED TO INDICATE THE COMMERICAL ACTIVITY OF PASSENGER CARS. THE TAXIS AND CAR FOR HIRE ARE TAKEN FROM INTERNAL REVENUE BUREAU REPORT SHOWING NUMBER OF CARS FOR HIRE WITH FROM 2 TO 7 SEATS WHICH PAID FEDERAL TAX DURING FISCAL YEAR ENDING JUNE 30TH 1926. A FEW STATES AS NOTED REPORTED LATER DATA WHICH IS HERE GIVEN. THE BUSSES SHOWN ARE TAKEN FROM "BUS TRANSPORTATION" ISSUED IN FEBRUARY 1926, WITH EXCEPTION OF A FEW STATES WHICH REPORTED A TOTAL AS NOTED. THIS LIST IS ONLY PARTIAL AND MAY INCLUDE SOME "JITNEYS" AND CARS WITH LESS THAN EIGHT PASSENGERS. WE ARE UNABLE TO VERIFY THE FIGURES AT THIS TIME. THE TOTAL BUSSES FOR U.S. IS REPORTED BY BUS TRANSPORTATION AS 69,425 BUT ONLY THE NUMBER HERE SHOWN HAS BEEN ALLOCATED TO THE VARIOUS STATES. 5/ UNDER THIS GROUP ARE SHOWN TRAILERS GENERALLY USED WITH ROAD TRACTORS AND MOTORCYCLES (WITH OR WITHOUT SIDE-CAR). 6/ THIS GROUP INCLUDES OFFICIAL CARS WHICH ARE EXEMPT (OR PARTIALLY EXEMPT) FROM PAYING REGULAR REGISTRATION FEES TO THE STATES, AND INCLUDE CARS AND TRUCKS OWNED BY THE U. S. GOVERNMENT AND THE STATE, COUNTY AND MUNICIPAL AUTHORITIES ACCORDING MOTOR VEHICLE LICENSE LAWS VARIOUS STATES. THE TOTAL U. S. CARS IS TAKEN FROM THE RECORDS OF THE U. S. BUDGET BUREAU AND THE OTHER COLUMNS ARE AS REPORTED. 7/ THE TOTALS OF SEVEN STATES AND THE GRAND TOTAL AS NOTED BELOW HAVE BEEN REVISED FROM FORMER PUBLISHED FIGURES TO INCLUDE 1896 ROAD TRACTORS, SO THAT THE 1924 GRAND TOTAL WILL BE COMPARABLE TO THE 1925 GRAND TOTAL IN COLUMN ONE. 8/ THIS COLUMN SHOWS THE NUMBER AS REPORTED BY THE STATES, AND IS NOT COMPLETE. 9/ AS REPORTED BY THE MOTOR VEHICLE BUREAU. 10/ INCLUDES 7,728 PUBLIC SERVICE CORPORATION CARS [illegible] TRUCKS WHICH ARE TAX-EXEMPT BY LAW. 11/ INCLUDES ROAD TRACTORS NOT FORMERLY INCLUDED. 12/ INCLUDES BUSSES, AS REPORTED BY STATE. 13/ TOTAL REPORTED TO THIS BUREAU, WHICH IS LARGER THAN NUMBER SHOWN IN US TRANSPORTATION. 14/ INCLUDED WITH OPERATOR'S LICENSES. 15/ ONLY 6 MONTHS DATA REPORTED JULY 1 TO DECEMBER 31ST AS FISCAL REGISTRATION YEAR ENDS JUNE 30TH. 16/ INCLUDED WITH MOTOR TRUCKS AND TRACTORS. 17/ THIS TOTAL IS THE BEST AVAILABLE DATA AT PRESENT. LATER THE NUMBER IN EACH STATE WILL BE PUBLISHED.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

TABLE MV-2 (1925)

MOTOR VEHICLE REGISTRATION FEES, LICENSES, PERMITS, FINES, ETC.
ALSO GROSS RECEIPTS AND DISPOSITION OF FUND 1/

FOR CALENDAR YEAR, 1925 2/

B.P.R.-MISC. A-1
A-1925 MV 2

States and District of Col. 3/	Total Gross Receipts 4/	Registration Receipts 5/ — Motor Cars: Total Motor Cars	Motor Cars: Passenger cars & busses	Motor Cars: Trucks & tractors	Other Vehicles: Trailers	Other Vehicles: Motor-cycles	Miscellaneous Receipts: Dealers' Licenses	Miscellaneous Receipts: Chauffeur & Operator Permits	Miscellaneous Receipts: Other Miscellaneous	Disposition of Gross Receipts: Collection and Administration	For Highway Purposes: State Highways	For Highway Purposes: Local Roads	For Highway Purposes: State Road Bonds	For Other Purposes	States and District of Col.
	$														
Alabama	$ 2,511,129	6/ 2,494,820	-	-	-	-	$ 2,599	$ 10,410	3,299	7/ $ 105,527	$ 769,874	$ 486,490	$ 1,138,828	8/ $ 10,410	Alabama
Arizona	405,592	385,032	-	-	-	$ 644	3,649	1,695	14,573	18,000	9/ 387,592	-	-	-	Arizona
Arkansas	3,150,000	10/	-	-	-	-	-	-	-	12,000	1,731,000	583,000	824,000	-	Arkansas
California *	7,816,298	6,754,002	$ 4,081,130	$ 2,672,872	$ 209,185	39,956	42,251	258,684	512,220	951,076	3,432,611	3,073,607	-	11/ 359,004	California
Colorado*	1,430,299	1,336,392	1,127,149	209,243	1,140	3,724	-	-	89,043	71,615	679,392	679,392	-	-	Colorado
Connecticut*	5,644,247	4,303,483	3,178,878	1,124,605	7,853	15,376	-	-	1,317,535	-	5,644,247	-	-	-	Connecticut
Delaware*	680,700	517,004	378,265	138,739	2,269	1,485	7,990	133,720	18,232	-	680,700	-	-	-	Delaware
Florida*	3,645,628	3,449,052	2,536,383	912,669	18,927	4,803	24,435	9,019	139,392	261,220	2,538,306	846,102	-	-	Florida
Georgia*	3,010,415	2,952,609	2,473,485	479,124	-	4,081	42,700	5,594	5,431	98,297	2,912,118	-	-	-	Georgia
Idaho *	1,192,587	1,155,174	967,860	187,314	3,711	2,450	19,515	896	10,841	12/	140,444	1,037,226	14,917	-	Idaho
Illinois*	12,969,754	12,111,679	9,259,929	2,851,750	46,004	23,953	83,050	355,519	344,539	13/	9,982,450	-	2,987,304	-	Illinois
Indiana*	4,649,663	4,318,734	3,300,396	1,018,338	17,352	8,336	53,950	74,567	176,724	205,681	4,443,982	-	-	-	Indiana
Iowa	9,741,103	10/	-	-	-	-	-	-	-	713,036	5,758,141	-	3,030,325	14/ 239,601	Iowa
Kansas	4,610,090	10/	-	-	-	-	-	-	-	230,505	3,284,689	1,094,896	-	-	Kansas
Kentucky *	3,780,062	3,664,979	2,864,448	800,531	-	5,581	31,012	16,319	61,671	132,105	3,247,733	400,224	-	-	Kentucky
Louisiana	3,400,045	3,343,049	-	-	-	2,600	-	54,396	-	40,000	3,360,045	-	-	-	Louisiana
Maine*	2,182,135	1,671,096	1,330,814	340,282	2,615	7,936	324,870	32,952	142,666	15/ 254,526	1,302,196	-	552,647	16/ 72,766	Maine
Maryland*	2,576,301	2,006,322	1,744,423	261,899	11,978	15,682	-	262,595	279,724	17/ 250,000	2,326,301	-	-	-	Maryland
Massachusetts*	9,843,901	7,346,952	5,794,224	1,552,728	14,795	47,069	59,700	1,396,756	978,629	921,514	8,922,387	-	-	-	Massachusetts
Michigan*	14,526,002	13,107,863	10,160,579	2,947,284	121,435	13,234	86,563	241,782	955,125	300,000	7,356,467	6,000,000	-	18/ 869,535	Michigan
Minnesota*	9,744,834	9,651,795	8,654,290	997,505	6,847	11,743	34,092	-	40,357	19/	6,294,834	-	3,450,000	-	Minnesota
Mississippi *	1,530,000	1,529,150	1,377,000	152,150	-	850	-	-	-	45,900	-	1,484,100	-	-	Mississippi
Missouri	7,267,098	10/	-	-	-	-	-	-	-	432,023	6,835,075	-	-	-	Missouri
Montana*	915,253	914,878	788,125	126,753	-	375	-	-	-	32,000	-	883,253	-	-	Montana
Nebraska*	3,936,458	3,791,628	3,141,477	650,151	3,456	4,902	-	-	136,472	98,411	1,151,414	2,686,633	-	-	Nebraska
Nevada	209,197	208,401	-	-	-	600	-	-	196	10,584	114,225	3,138	81,250	-	Nevada
New Hampshire	1,736,094	1,383,969	-	-	20/	9,556	28,401	229,535	84,633	114,610	1,613,804	-	-	21/ 7,680	New Hampshire
New Jersey*	10,515,323	7,592,255	4,527,893	3,054,362	45,895	15,460	63,661	1,983,948	824,104	1,177,057	5,552,266	3,725,000	-	22/ 61,000	New Jersey
New Mexico*	457,874	447,001	403,344	43,657	570	728	-	-	9,575	31,991	283,922	141,961	-	-	New Mexico
New York*	25,506,245	22,502,688	15,675,072	6,827,616	36,168	85,186	153,745	-	2,728,458	23/ 372,848	18,876,461	6,241,060	-	21/ 15,876	New York
North Carolina	24/ 8,359,844	10/	-	-	-	-	-	-	-	149,761	8,210,083	-	25/	-	North Carolina
North Dakota*	1,083,573	1,049,324	935,031	114,293	-	1,397	-	-	32,952	150,000	401,787	401,786	130,000	-	North Dakota
Ohio	13,147,231	10/	-	-	-	-	-	-	-	26/	6,573,616	6,573,615	-	-	Ohio
Oklahoma	4,576,572	10/	-	-	-	-	-	-	-	27/	187,858	3,978,022	-	28/ 410,692	Oklahoma
Oregon*	5,370,202	5,207,691	4,440,577	767,114	20/	14,629	17,570	77,107	53,205	200,000	-	1,292,551	3,877,651	-	Oregon
Pennsylvania*	21,926,972	16,934,504	11,568,692	5,365,812	29,277	41,932	296,887	1,721,187	2,903,135	29/ 2,563,137	18,952,448	-	-	30/ 411,387	Pennsylvania
Rhode Island*	1,863,955	1,432,561	1,059,054	373,507	1,003	5,009	13,340	234,504	177,538	306,492	1,557,463	-	-	-	Rhode Island
South Carolina *	2,366,076	2,106,271	1,784,735	321,536	13,710	1,567	25,670	1,141	217,717	187,729	1,736,716	-	-	31/ 441,631	South Carolina
South Dakota*	2,445,112	2,403,501	2,143,944	259,557	-	1,630	23,975	-	16,006	21,511	1,222,556	1,201,045	-	-	South Dakota
Tennessee	3,060,948	10/	-	-	-	-	-	-	-	54,243	3,006,705	-	-	-	Tennessee
Texas	13,477,931	8,976,151	-	-	-	11,140	-	-	4,490,640	476,146	9,368,187	3,633,598	-	-	Texas
Utah	554,235	10/	-	-	-	-	-	-	-	-	-	-	32/ 554,235	-	Utah
Vermont*	1,497,146	1,265,611	1,145,126	120,485	-	5,000	-	-	226,535	82,037	1,415,109	-	-	-	Vermont
Virginia*	4,300,950	3,947,402	3,414,997	532,405	4,594	7,576	-	-	341,378	33/	4,122,018	-	-	34/ 178,932	Virginia
Washington*	4,980,026	4,348,572	3,774,828	1,073,744	32,715	15,414	-	-	83,325	240,059	4,665,195	74,772	-	-	Washington
West Virginia*	3,354,247	3,022,617	2,470,524	552,093	2,577	5,902	40,910	137,520	144,621	264,336	783,573	-	2,000,000	35/ 306,288	West Virginia
Wisconsin*	7,896,210	7,659,722	6,309,848	1,349,874	20/	21,140	86,775	-	128,573	330,000	5,526,210	1,875,000	36/	21/ 15,000	Wisconsin
Wyoming*	482,857	470,459	378,169	92,290	-	1,054	-	-	11,344	13/	-	-	482,857	-	Wyoming
Dist. of Col.*	291,207	111,758	98,456	13,302	-	1,312	-	49,809	128,328	37/ 36,820	33/ 254,387	-	-	-	Dist. of Col.
Detailed Total	3/ 184,412,512	161,574,729	123,289,145	38,285,584	634,076	436,482	1,537,661	6,994,219	13,235,345	-	-	-	-	-	Detailed Total
GRAND TOTAL	260,619,621	-	-	-	-	-	-	-	-	11,992,747	177,706,587	48,396,471	19,124,014	3,399,802	GRAND TOTAL

NOTES: (1) Only financial data shown in this table. For numerical data see Table MV-1 (1925) An explanatory statement has been issued in connection with these two tables outlining the significance of the details and headings. (2) All states report amounts of full calendar year, except North Carolina, which reports for only 6 months, July 1 to December 31, on account of the registration year beginning on July 1st in that state. (3) The 34 states starred below show complete receipt details, which are totaled below under the 9 receipt columns as sub-totals called "Detailed Total." (4) Total funds received by state and county officials in connection with the operation of the motor vehicle license laws. (5) Receipts received for reregistrations, non-resident registrations, duplicate tags, etc. eliminated to correspond to numerical lists in Table MV-1. (6) Includes all registered vehicles (7) Includes $62,370 for Probate Judges. (8) Amount from licenses of taxi chauffeurs allotted to state general fund. (9) For maintenance work. (10) No detail given (11) Traffic officers expenses, deducted from county share of net receipts (12) Special state appropriation through State Highway Fund. (13) Special state appropriation. (14) For State Highway Commission maintenance (15) Includes $153,531 for motor vehicle law enforcement (16) Expenses of State Highway Commission (17) Estimated (18) Expenses of motor vehicle theft department (19) Estimated at $302,600 paid from state appropriation (20) Included under motor cars (21) Refunds (22) Toll bridge commission (23) Collection fees of county clerks in addition to the expenses of 7 city offices, $1,857,900 taken from General State Fund. (24) For period of 6 months, July 1 to December 31, as registration year begins July 1st. (25) Interest and sinking fund requirements included in state highway amount. (26) Special legislative appropriation of $363,659 (27) Expenses from State Highway Department Fund. (28) State General Fund to July 1,1925: not to receive any share after this date (29) $1,420,048 expended for administration and balance for administration of road work by State Highway Department (30) For state highway patrol. (31) Includes $374,140 refund by amendment to law and $67,491 to state general fund. (32) Includes amount spent on collection and administration (33) State appropriation of $296,969.05 (34) Operation of auto theft law (35) State Road Commission expenses (36) Bond payments included with other items. (37) All money collected deposited in U. S. Treasury. This amount is the appropriation for expenses of administration. (38) Amount to balance with Gross Receipts. The U. S. appropriations for streets is much higher.

RECOMMENDATIONS CONSIDERED AT THE SPRING MEETING OF THE COMMITTEE ON ROAD MATERIALS, A.S.T.M.

At the spring meeting of the Committee on Road Materials of the American Society for Testing Materials held in Philadelphia on March 31, numerous proposed recommendations for specifications and methods of testing bituminous and non-bituminous road materials were considered. These recommendations are now before the committee for final review and vote, and as adopted will be presented to the Society at its annual meeting in June.

New tentative specifications for mineral filler to be used in sheet asphalt and bituminous concrete pavements and for asphalt filler for brick pavements were advanced. The latter is similar to the specification of the National Paving Brick Manufacturers Association. The present tentative specifications for paving asphalt of 40 to 50, 50 to 60, and 60 to 70 penetration were modified in title to provide for their use in joints of brick and granite block pavements. A change in the standard specifications for granite block to provide for a block nominally 5 inches wide as well as a block nominally 4 inches wide was recommended.

As additional tentative methods of testing, it was voted to send to letter ballot of the committee, methods for determining the residue of a given penetration in road oils, for testing bituminous emulsions, and a revised method for distillation of bituminous road materials. The proposed distillation method utilizes the same apparatus as that recently adopted for creosote by the Committee on Timber of the A.S.T.M., the American Wood Preservers Association, and the American Railway Engineering Association, and is advocated as a more convenient method as well as in the interest of uniformity. Essential changes from the existing standard method include the use of a new flask and the condenser now specified for creosote distillation tests.

Slight changes, of importance in defining procedure more accurately, were proposed in the tentative methods for ductility, determination of bitumen, determination of bitumen soluble in carbon tetrachloride, specific gravity of bituminous materials, and in the standard ring-and-ball softening-point method.

The withdrawal of the tentative method for mechanical analysis of subgrade soils was recommended, since it is now obsolete, and the proposal of a substitute method was deferred for the present.

The committee also considered a new tentative recommended practice in bituminous-paving plant inspection, covering methods and frequency of sampling, field testing, control and reporting of plant operation. Tentative specifications for testing sieves, published in 1925, were approved by the Road Materials Committee, and by letter ballot it voted to use in specifications for sizes larger than a No. 4 sieve, screens having circular openings. The committee expressed itself as in favor of adherence to a distinction between the terms "screen" and "sieve" as given in present standard definitions.

PROGRESS OF TRAFFIC TEST OF PAVING BRICK

Contributed by the Division of Tests

The sections of the circular track at Arlington paved with brick of various thicknesses which have been under test by the Bureau in cooperation with the National Paving Brick Manufacturers' Association have now been subjected to 40,000 passages of a loaded solid-tired truck, and with the exception of the 2-inch brick practically no damage has resulted to any section.

Traffic was started November 27, 1925, using a 3-ton loading (maximum wheel load 5,800 pounds). After 10,000 trips of this load around the circular pavement no breakage was found in any section.

The next increment was a 5-ton truck loaded with a 5-ton cargo (maximum wheel load 7,750 pounds). During 10,000 passages of this load over the pavement the following breakage occurred:

2-inch brick on plain sand - 14 broken brick,

2-inch brick on cement-sand - 22 broken brick,

Other sections - no breakage.

THIS LOADING WAS FOLLOWED BY ONE IN WHICH THE MAXIMUM WHEEL LOAD WAS ABOUT 10,600 POUNDS, GIVING THE SAME LOAD PER INCH WIDTH OF TIRE AS OCCURS ON A 7-1/2 TON TRUCK LOADED TO CAPACITY. AFTER 10,000 PASSAGES OF THIS LOAD THE TOTAL BREAKAGE WAS AS FOLLOWS:

2-INCH BRICK ON PLAIN SAND - 70 BROKEN BRICK

2-INCH BRICK ON CEMENT-SAND - 134 BROKEN BRICK

$2\frac{1}{2}$-INCH BRICK ON CEMENT-SAND - 1 BROKEN BRICK

4-INCH BRICK ON CEMENT-SAND - 1 BROKEN BRICK

OTHER SECTIONS - NO BREAKAGE

IT WAS DECIDED TO REPEAT THIS LOADING, AND AFTER ANOTHER 10,000 (TOTAL 20,000) APPLICATIONS OF THIS LOAD THE DAMAGE TO THE VARIOUS SECTIONS WAS AS FOLLOWS:

2-INCH BRICK ON PLAIN SAND - 100 BROKEN BRICK

2-INCH BRICK ON CEMENT-SAND - 177 BROKEN BRICK

$2\frac{1}{2}$-INCH BRICK ON PLAIN SAND - 2 BROKEN BRICK

$2\frac{1}{2}$-INCH BRICK ON CEMENT-SAND - 2 BROKEN BRICK

3-INCH BRICK ON PLAIN SAND - NO BROKEN BRICK

3-INCH BRICK ON CEMENT-SAND - NO BROKEN BRICK

$3\frac{1}{2}$-INCH BRICK ON PLAIN SAND - NO BROKEN BRICK

$3\frac{1}{2}$-INCH BRICK ON CEMENT-SAND - 4 BROKEN BRICK

4-INCH BRICK ON PLAIN SAND - NO BROKEN BRICK

4-INCH BRICK ON CEMENT-SAND - 1 BROKEN BRICK

This is the present condition of the test sections, after being subjected to an exceedingly heavy truck traffic equipped with solid tires in good condition. It is now proposed to continue these tests immediately with trucks equipped with non-skid chains on the rear wheels. The first loading will be the 3-ton truck with 3-ton cargo, as used at the beginning of the tests.

In addition to the field tests just described, laboratory tests have been made on the brick of each thickness to determine their rattler loss, percentage of absorption and modulus of rupture, using both the A.S.T.M. standard equipment and the equalizer apparatus proposed by the U. S. Bureau of Standards.

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E. W. James, Chief of Division of Design now in Paris

E. W. James, Chief of the Division of Design, left Washington on April 13, to proceed to Paris, France, as technical adviser to the delegate appointed to represent the United States Government at the conference called for the purpose of revising the Convention of 1911 on International Road Traffic. It is recognized by the Department of Agriculture that in the development of highway transport there are many phases of a technical character. Because of the rapidity with which this type of transportation has developed in this country, and because of the proportions which have been reached by both the highway construction industry and the automotive industry, it is inevitable that our foreign contacts will increase. It will be the policy of the Department of Agriculture through the Bureau of Public Roads to extend such technical service and advice in this field as may be desired from time to time by the other Departments of the Government which are primarily responsible for international relationships.

For some time past Mr. James has devoted a large portion of his time to the development of the numbering and marking of the system of interstate highways. As Secretary of the Joint Board on Interstate Highways he was closely identified with the designation of the 80,000 miles of principal arteries selected as United States highways and with the working out of a uniform system of directive information, caution and danger signs and numbered route markers for these roads.

CONCRETE TESTS BEING MADE BY THE NEW JERSEY STATE HIGHWAY DEPARTMENT

CONTRIBUTED BY THE DIVISION OF TESTS.

THE NEW JERSEY STATE HIGHWAY DEPARTMENT, IN COOPERATION WITH THE BUREAU, HAS BEGUN A SERIES OF CONCRETE TESTS FOR THE PURPOSE OF STUDYING THE RELATIVE PROPERTIES OF CONCRETE MADE FROM THE CRUSHED STONE AND GRAVEL WHICH ARE AVAILABLE FOR CONCRETE ROAD CONSTRUCTION IN THAT STATE. THE TESTS WHICH ARE BEING MADE IN THE STATE HIGHWAY LABORATORY AT TRENTON, INVOLVE THE FABRICATION AND TESTING OF ABOUT 250 CONCRETE BEAMS EACH 8 BY 8 BY 48 INCHES IN SIZE, AS WELL AS OF A LARGE NUMBER OF CYLINDERS FOR COMPRESSION TESTS.

THE PROGRAM CALLS FOR THREE SERIES OF TESTS. IN THE FIRST SERIES THE WORKABILITY OF THE CONCRETE IS TO BE KEPT CONSTANT, AS NEARLY AS POSSIBLE, BY MEANS OF THE FLOW TEST, AND THE RELATIVE YIELD AND STRENGTH OF THE CONCRETE IS TO BE DETERMINED FOR EACH OF SEVERAL GRADATIONS BOTH OF CRUSHED STONE AND GRAVEL, USING CONCRETE PROPORTIONS AS GIVEN IN THE CURRENT NEW JERSEY STANDARD SPECIFICATIONS. THE OBJECT OF THIS SERIES IS TO DETERMINE THE RELATIVE STRENGTH AND YIELD OF GRAVEL CONCRETE AS COMPARED WITH CRUSHED STONE CONCRETE FOR SEVERAL SIZES AND GRADATIONS OF COARSE AGGREGATE.

IN THE SECOND SERIES AN EFFORT WILL BE MADE TO DESIGN CONCRETE OF A GIVEN STRENGTH BY MEANS OF THE WATER-CEMENT RATIO THEORY FOR EACH TYPE AND GRADATION OF COARSE AGGREGATE. THE PROCEDURE TO BE FOLLOWED IN THIS SERIES IS ESSENTIALLY AS FOLLOWS: TO EACH GRADATION AND TYPE OF COARSE AGGREGATE, FINE AGGREGATE WILL BE ADDED IN THE FOLLOWING RATIOS BY VOLUME:

(A) 33:67
(B) 36:64
(C) 40:60

TO EACH OF THE ABOVE COMBINATIONS A WATER-CEMENT PASTE IN A FIXED RATIO, DEPENDING ON THE STRENGTH DESIRED, WILL BE ADDED UNTIL THE DESIRED WORKABILITY HAS BEEN REACHED. THE END POINT IN EACH CASE WILL BE DETERMINED BY MEANS OF THE FLOW TEST, SUPPLEMENTED BY THE JUDGMENT OF EXPERIENCED CONCRETE OPERATORS. CONCRETE SPECIMENS WILL THEN BE MADE IN THE PROPORTIONS AS DETERMINED BY THE TRIAL METHOD REFERRED TO, AND THE COMPARATIVE

STRENGTH, WHICH SHOULD BE CONSTANT, THE COMPARATIVE YIELD, AND THE COMPARATIVE ABSORPTION WILL BE DETERMINED.

IN THE THIRD SERIES OF TESTS SPECIMENS WILL BE MADE IN WHICH THE CONCRETE MIXTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE FINENESS MODULUS THEORY AS GIVEN IN "THE DESIGN AND CONTROL OF CONCRETE MIXTURES," RECENTLY ISSUED BY THE PORTLAND CEMENT ASSOCIATION. THE RESULTS OBTAINED FROM THIS SERIES WILL BE USED AS A CHECK AGAINST THE RESULTS OBTAINED IN THE SECOND SERIES.

ASSUMING A CONSTANT STRENGTH AND A CONSTANT DEGREE OF WORKABILITY, IT IS HOPED TO DETERMINE BY MEANS OF THESE TESTS WHAT GRADING OF COARSE AGGREGATE AND WHAT PROPORTIONS OF FINE TO COARSE WILL GIVE THE GREATEST YIELD OF CONCRETE FOR BOTH CRUSHED STONE AND GRAVEL.

SURVEY SHOWING FACILITIES OF STATE HIGHWAY ORGANIZATIONS FOR TESTING ROAD MATERIALS

CONTRIBUTED BY THE DIVISION OF TESTS

THE BUREAU HAS JUST FINISHED A SURVEY, CONDUCTED BY CORRESPONDENCE, FOR THE PURPOSE OF DETERMINING THE PRESENT STATUS OF THE VARIOUS STATES RELATIVE TO THEIR FACILITIES FOR TESTING ROAD MATERIALS. QUESTIONNAIRES WERE SUBMITTED TO ALL STATES, WITH THE REQUEST THAT INFORMATION BE FURNISHED SHOWING THE LOCATION OF THEIR TESTING LABORATORY, WHEN IT WAS ESTABLISHED, THE NAME OF THE INDIVIDUAL IN CHARGE, THE NUMBER OF EMPLOYEES LAST YEAR AND THE NUMBER OF TESTS MADE LAST YEAR, TOGETHER WITH A STATEMENT AS TO WHETHER THEY WERE OR WERE NOT EQUIPPED TO MAKE THE VARIOUS TESTS OF BOTH BITUMINOUS AND NON-BITUMINOUS ROAD MATERIALS.

AS A RESULT OF THIS SURVEY, IT WAS FOUND THAT 45 OF THE 48 STATES HAVE NOW REGULARLY DESIGNATED, OFFICIAL TESTING LABORATORIES, 33 OF WHICH ARE LOCATED IN BUILDINGS ENTIRELY APART FROM ANY OTHER INSTITUTION WHATEVER. TWELVE LABORATORIES ARE OPERATED IN CONNECTION WITH EDUCATIONAL INSTITUTIONS - IN MOST CASES STATE UNIVERSITIES - AND EITHER USE THE UNIVERSITY EQUIPMENT OR USE STATE-OWNED EQUIPMENT HOUSED IN UNIVERSITY QUARTERS. THESE LABORATORIES EMPLOYED A TOTAL OF OVER 400 MEN ON TESTING WORK DURING THE SEASON OF 1925, AND TESTED UPWARDS OF 260,000 INDIVIDUAL SAMPLES OF ROAD MATERIALS.

IT IS INTERESTING TO OBSERVE IN THIS CONNECTION THAT IN 1917, A SHORT TIME AFTER THE PASSAGE OF THE FIRST FEDERAL AID ROAD ACT, THERE WERE ONLY 12 STATE HIGHWAY LABORATORIES IN EXISTENCE. IT IS ALSO INTERESTING TO NOTE THAT IN NO CASE HAS A STATE, HAVING ONCE ESTABLISHED A HIGHWAY TESTING LABORATORY OF ITS OWN, SUBSEQUENTLY ABANDONED IT.

THE SURVEY INDICATED THAT THE MAJORITY OF THE LABORATORIES WERE EQUIPPED TO MAKE COMPLETE TESTS OF ALL OF THE MOST COMMONLY USED ROAD MATERIALS, INCLUDING BITUMINOUS MATERIALS, BITUMINOUS MIXTURES, CEMENT, CONCRETE, ROCK, SAND AND GRAVEL, CULVERT PIPE, ETC. A NUMBER OF THE LABORATORIES HAVE ALSO QUITE RECENTLY INSTALLED EQUIPMENT FOR MAKING TESTS ON SUCH MATERIALS AS PAINT, REINFORCING STEEL, ETC. IN GENERAL, IT WOULD SEEM THAT, INSOFAR AS LABORATORY FACILITIES ARE CONCERNED, THE STATES ARE IN EXCELLENT SHAPE FOR THE COMING SEASON.

LATIN-AMERICAN DELEGATES VISIT THE UNITED STATES

ON APRIL FIFTH, EDITORS AND JOURNALISTS FROM TWENTY-ONE LATIN-AMERICAN COUNTRIES ARRIVED IN THIS COUNTRY TO TAKE PART IN THE FIRST PAN AMERICAN CONGRESS OF JOURNALISTS.

AFTER SESSIONS AT THE PAN AMERICAN UNION EXTENDING OVER A WEEK IN WHICH THE LATIN AND NORTH AMERICAN PRESS REPRESENTATIVES TOOK PART THE LATINS VISITED, NORFOLK, BALTIMORE, PHILADELPHIA AND NEW YORK AS THE GUESTS OF THE NEWSPAPERS IN THOSE CITIES. ON FRIDAY, APRIL TWENTY-THIRD THEY WERE SCHEDULED TO LEAVE NEW YORK BY AUTOMOBILE FOR A TRIP OVER OUR HIGHWAYS UNDER THE AUSPICES OF THE PAN AMERICAN CONFEDERATION FOR HIGHWAY EDUCATION. THE ITINERARY INCLUDES STOPS AT WEST POINT, WHERE THE MILITARY ACADEMY IS TO BE INSPECTED, THE GENERAL ELECTRIC COMPANY PLANTS AT SCHENECTADY, THE EASTMAN KODAK COMPANY AT ROCHESTER, AND A SIDE TRIP FROM BUFFALO TO VIEW NIAGARA FALLS. THE TRIP WILL THEN BE CONTINUED TO AKRON TO INSPECT THE RUBBER AND TIRE PLANTS OF THAT CITY AND FROM THERE BY WAY OF COLUMBUS AND TOLEDO TO DETROIT ARRIVING ON APRIL THIRTEENTH.

FOUR DAYS WILL BE SPENT IN DETROIT AS THE GUESTS OF THE NATIONAL AUTOMOBILE CHAMBER OF COMMERCE AND AN OPPORTUNITY WILL BE GIVEN FOR INSPECTING THE DIFFERENT AUTOMOBILE PLANTS. ON WEDNESDAY, MAY FIFTH THEY WILL LEAVE FOR SOUTH BEND, INDIANA TO VISIT THE STUDEBAKER CONCERN AND THEN PROCEED TO PITTSBURGH TO STUDY THE STEEL INDUSTRY AND RETURN TO NEW YORK ON MAY TENTH.

MR. MACDONALD HAS ARRANGED TO ACCOMPANY THE DELEGATES ON THE TRIP AND THE DEPARTMENT ALSO PLANS TO MAKE MOTION AND STILL PICTURES OF THE ACTIVITIES OF THE MOTOR CARAVAN.

PROGRESS OF FEDERAL HIGHWAY LEGISLATION

S. 3071 - Introduced in the Senate on February 10, 1926, by T. J. Walsh of Montana.

(This information was briefed in the March News Letter but due to a typographical error 1920 instead of 1924 was referred to. The corrected brief follows.)

Provides that the unexpended portions of the 1924 and 1925 Montana Federal aid highway appropriations shall not be reapportioned among the balance of the States at the expiration of the two year limit but that these funds shall be spent on the construction of the road from Red Lodge, Montana, through Cooke City to connect with the existing highway leading to Yellowstone National Park.

S. 3889 - Introduced in the Senate on April 7, 1926, by E. B. Mayfield of Texas, and referred to the Committee on Interstate Commerce.

Amends the Interstate Commerce Act with respect to tolls over certain interstate bridges. Provides that all tolls over interstate bridges shall be just and reasonable as determined by the Interstate Commerce Commission but provides that interstate bridges over navigable waters shall continue to be regulated by the Secretary of War. Specifies a fine of $5,000 for violation of the proposed amendment.

H.R. 8722 - Signed by the President on March 3, 926.

Makes appropriations to supply urgent deficiencies in certain appropriations for the fiscal year ending June 30, 1926, and prior fiscal years $3,775,000 appropriated for forest roads and trails of the $7,500,000 authorized for the fiscal year 1926.

$22,900,000 appropriated for Federal-aid roads, being part of the $75,000,000 authorized for the fiscal year 1925.

H.R. 9504 - Passed by the House on April 16, 1926, without a record vote. Twenty-five speeches made for but none against the bill. It was then transmitted to the Senate and referred to the Committee on Post Offices and Post Roads.

Amends the Federal-aid road act of July 11, 1916, as previously amended and supplemented. Provides for an authorization of $75,000,000 for Federal-aid highways and $7,500,000 for forest roads and trails for each of the fiscal years 1928 and 1929.

ASSOCIATED PRESS DISPATCH OF FEBRUARY 19 INCORRECT

On February 19, the Washington office of the Associated Press dispatched an incorrect news item to the newspapers of the country with regard to the statements of Mr. T. Warren Allen and Mr. MacDonald before the House Committee on Roads in the hearing on the Federal-aid road appropriation. Unfortunately the subject treated was of such a nature that it might be misinterpreted readily by newspaper reporters unfamiliar with the engineering phases of the matter. The Associated Press despatch read as follows:

"Washington,
February 19.

"Less than fifty per cent efficiency in road construction is wasting millions of dollars a year in this country, T. Warren Allen of the Bureau of Public Roads today told the House Roads Committee, which has before it a bill carrying $185,000,000 for a 2-year Federal aid program.

"Although making no estimate of the dire . losses of public and private money, Mr. Allen said that approximately $1,000,000,000 is spent annually in this country for road construction and maintenance, much of it for work constructed at less than half of possible efficiency.

"Thomas H. MacDonald, Chief of the Bureau, said road construction efficiency was far below that of railroad work."

THE ASSOCIATED PRESS, IN AN EFFORT TO CORRECT THE ERRONEOUS IMPRESSION WHICH WAS CAUSED BY THEIR ORIGINAL NEWS ITEM, HAS AGREED TO SEND OUT THE FOLLOWING DESPATCH:

"ALTHOUGH INVESTIGATIONS MADE BY THE BUREAU OF PUBLIC ROADS INDICATE THAT THE AVERAGE HIGHWAY CONTRACTOR DOES NOT OPERATE ABOVE 50 PER CENT EFFICIENCY, THOS. H. MACDONALD, CHIEF OF THE BUREAU DECLARED TODAY THAT THE HIGHWAY BUILDERS ARE NO LESS EFFICIENT THAN CONTRACTORS ON RAILROAD WORK AND OTHER CONSTRUCTION OPERATIONS.

"ONE HUNDRED PER CENT EFFICIENCY, ACCORDING TO MR. MACDONALD, IS NOT OBTAINABLE ON WORK OF THIS CHARACTER, DETAILED OBSERVATIONS INDICATING FROM 85 TO 90 PER CENT TO BE THE BEST PRACTICABLE PERFORMANCE.

"THE DIFFERENCE BETWEEN THE MAXIMUM OBTAINABLE EFFICIENCY AND THE AVERAGE PERFORMANCE RESULTS LARGELY FROM NUMEROUS SMALL TIME LOSSES THE IMPORTANCE OF WHICH IS NOT SUFFICIENTLY APPRECIATED BY THE FOREMEN AND SUPERINTENDENTS WHO DIRECT THE LABOR EMPLOYED ON LARGE CONSTRUCTION PROJECTS.

"BY STOP-WATCH STUDIES OF OPERATIONS ON ACTUAL HIGHWAY PROJECTS THE BUREAU IS SEEKING TO DISCOVER THE COMMON TIME LOSSES AND BRING THEM TO THE ATTENTION OF CONTRACTORS GENERALLY. IN THIS WAY IT HOPES TO DEVELOP A HIGHER AVERAGE LEVEL OF EFFICIENCY IN THE CONDUCT OF THE COUNTRY'S BILLION DOLLAR PROGRAM OF ROAD CONSTRUCTION AND MAINTENANCE.

"IN SPITE OF THE LOW AVERAGE LEVEL OF EFFICIENCY, MR. MACDONALD ADDED, HIGHWAY CONTRACTING HAS LONG BEEN LOOKED UPON BY CONTRACTORS AS AN UNCERTAION BUSINESS, AND THIS BELIEF HAS BEEN REFLECTED IN THE RISING RATES CHARGED BY BONDING COMPANIES. ONE REASON FOR THIS SITUATION IS FOUND IN THE IRRESPONSIBLE BIDDING OF CONTRACTORS WHO HAVE NEITHER THE PLANT, EQUIPMENT NOR FINANCIAL ABILITY TO C RY ON THE WORK, BUT WHO, IN ORDER TO GET THE CONTRACT, UNDERBID THE REALLY RESPONSIBLE BIDDERS.

"THE BUREAU'S STUDIES HAVE BEEN MADE WITH THE INTENTION OF SHOWING THE RESPONSIBLE CONTRACTORS HOW COSTS MAY BE REDUCED, AND OF ASSISTING THEM IN THAT WAY TO MEET THE COMPETITION OF THOSE WHO HAVE NOTHING TO LOSE."